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**CROSS-REFERENCE TO RELATED APPLICATION**

This application claims the benefit of U.S. Provisional Application No. \_\_\_\_\_, entitled Communications Services Methods and Systems, filed March 21, 2001, the disclosure of which is expressly incorporated herein by reference in its entirety.

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**FIELD OF THE INVENTION**

The present invention relates generally to data processing systems and, more particularly, to systems and methods for collecting payments for services in a communications system.

**BACKGROUND MATERIAL AND INFORMATION**

Network enabled computers or other communications devices allow individuals to electronically communicate and to electronically conduct business transactions. For example, e-mail is often used for message transmission, and Internet web sites permit procurement of information, goods, and services over a network.

The manner in which a network may be accessed can vary depending on the type of hardware being used. For example, access to a mobile phone network often occurs using keys on the mobile phone, or in some instances through voice commands. Network access through a PDA may be achieved using a stylus on a sensing surface, and network access through a personal computer or laptop is often achieved through a keyboard or mouse.

Some network based communications and transactions might be impeded by input devices that users find cumbersome or awkward. While individuals are often very comfortable conveying information using pen and paper, and secondarily using keyboards and mouses, as communications hardware becomes smaller, input devices become more difficult to use. This can impede use of the technology.

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In addition, network-based financial transactions may be impeded by awkward or cumbersome payment procedures and schemes. If methods of payment are unduly burdensome or even somewhat cumbersome, wide spread adoption of the technology may be adversely affected.

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#### SUMMARY OF A FEW ASPECTS OF THE INVENTION

A method for collecting payments in a communications system may include receiving a request, via a provider of communications services, to provide a product to a user. The request may be generated in response to the user detecting information using a pen-like device that generates a signal reflective of the request. Information may then be transmitted in response to 10 the received request. In addition, a request for payment may then be made to the provider of communications services.

The product may include an information look-up provided by a look-up service, and the request for payment may seek reimbursement for a look-up fee by the lookup service. The request for payment may include a single request for reimbursement for multiple information 15 lookups. The user might be indirectly billed through the communications services provider. Billing may be performed on a transactional basis, or might occur in batches.

The product might also be goods or services ordered by the user from a vendor. In this case, the provider of communications services might reimburse the vendor for a purchase by the user, and thereafter bill the user for the services, perhaps along with an added transaction fee. 20 The vendor might also pay a transaction fee or percentage to the communications services provider for mediating the transaction. The provider of communications services may then bill

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the user for the user's purchase from the vendor in a single billing statement which also invoices communications services.

In another exemplary sense, the invention may include a method for collecting payments in an communications system where a request is sent to a lookup service to provide an information lookup to a user. The request may be generated in response to the user detecting information using a pen-like device that generates a signal reflective of the request. Information may then be transmitted from the look-up service to the user, and an entity other than the user may then be billed a fee for the information lookup.

As a further example, the invention may include a method for collecting payments in a communications system where a request for mapping information corresponding to a position of a digital pen on digital paper, is sent to a mapping lookup service. The position of the pen on paper may correspond to a service offered by a network operator. Mapping information may then be retrieved and sent to the digital pen, and a payment collected from the network operator for retrieving the mapping information.

The above information is exemplary of but a few aspects of the invention, and is not intended to reflect the full scope and spirit of the invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings are incorporated in and constitute a part of this specification and, together with the description, explain the features and principles of the invention. In the drawings:

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FIG. 1A is a diagram of an exemplary network environment in which features and aspects of the present invention may be implemented;

FIG. 1B depicts a lookup table for use by a mapping lookup service represented in FIG. 1A;

5 FIG. 2 is an exemplary flowchart of a method for a first billing arrangement in a manner consistent with the present invention;

FIG. 3 is an exemplary diagram of an interaction between an individual end user, network operator, and mapping lookup service, consistent with the billing arrangement described in FIG. 2;

10 FIG. 4 is an exemplary flowchart of a method for a second billing arrangement in a manner consistent with the present invention;

FIG. 5 is an exemplary diagram of an interaction between an individual end user, network operator, service provider, and mapping lookup service, consistent with the billing arrangement described in FIG. 4;

15 FIG. 6 is an exemplary flowchart of a method for a third billing arrangement in a manner consistent with the present invention;

FIG. 7 is an exemplary diagram of an interaction between an individual end user, network operator, service provider, and mapping lookup service, consistent with the billing arrangement described in FIG. 6;

20 FIG. 8 is an exemplary flowchart of a method for a fourth billing arrangement in a manner consistent with the present invention; and

FIG. 9 is an exemplary diagram of an interaction between an individual end user, network

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operator, service provider, payment provider, and mapping lookup service, consistent with the billing arrangement described in FIG. 8.

#### DETAILED DESCRIPTION

The following detailed description of the invention refers to the accompanying drawings.

5 While the description includes exemplary embodiments, other embodiments are possible, and changes may be made to the embodiments described without departing from the spirit and scope of the invention. The following detailed description does not limit the invention. Instead, the scope of the invention is defined by the appended claims and their equivalents.

#### Overview

10 Methods and systems consistent with the principles of the invention enable communications service revenue collection. A mapping lookup service may retrieve mapping information corresponding to a position of a digital pen on digital paper in response to a request for the mapping information from the digital pen. Alternatively, an electronic pen-like device may be used to read or otherwise generate an instruction and transmit that instruction over a  
15 network.

A service provider or network operator may offer a service that correlates either the position of the digital pen on digital paper to a requested action, or to otherwise convey the instruction and provides a requested action in response. The service provider or network operator may then be billed, for example, by the mapping lookup service for retrieving the  
20 mapping information.

In a first billing arrangement, the network operator may offer a service corresponding to the position of the digital pen and may bill an end user for that service. In a second billing

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arrangement, the network operator may bill the service provider for access to a communications network and no cost is passed on to the end user, according to an agreement between the service provider and the network operator, when the service provider is offering the service to an end user. In a third billing arrangement, the network operator may bill the service provider and the end user for access to a communications network. In a fourth billing arrangement, the service provider may enter into an agreement with a payment provider. The payment provider may pay the service provider for the service offered to the end user and bill the end user for that service. The network operator may also bill the service provider and the end user for access to a communications network.

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Network Environment

FIG. 1A is a diagram of an exemplary network environment in which the features and aspects of the present invention may be implemented. Network environment 100 may include individual end users 102a-102n, communications devices 104a-104n and 114a-114n, network 106, mapping lookup service 108, network operators 110a-110n, business end users 112a-112n, 15 service providers 116a-116n, and payment providers 118a-118n. The number of components in network environment 100 is not limited to what is shown.

Individual end users 102a-102n may be individuals who use a portable hand-held device, such as a digital pen, and a surface, such as digital paper, to obtain services offered by a network operator or service provider. For example, writing from a digital pen on digital paper may be 20 transformed to a facsimile message, an electronic mail (e-mail) message, or a short message (e.g., SMS -- Short Message Service). The message may be routed to an appropriate destination, which may be indicated by the writing. The digital pen may include a transmitter for

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communicating directly over a network, or may include a transmitter for relaying information over a network through an intermediary communications device, such as a mobile telephone, or a network connected computer or PDA (Personal Digital Assistant). Another example of pen-related functions may include those that permit end users to purchase goods or services. For example, an advertisement for flowers may be printed with portions containing digital paper code. By touching an appropriate part of the advertisement with a digital pen, an order for flowers might be placed to a local flower shop, where the order can be fulfilled.

Business end users 112a-112n may use a portable hand-held device, such as a digital pen, and a surface, such as digital paper, in a manner similar to individual end users 102a-102n. 10 Business end users, however, might typically use a digital pen in conjunction with an agreement between a network operator and a service provider. The business end user may either be an employee of or a business partner of the service provider in the arrangement. For example, a business end user 112a may be an employee of UPS (United Parcel Service). UPS might have a digital pen-based inventory system, and equip delivery personnel with digital pens for transmitting delivery status information to a host computer. Accordingly, UPS is a service provider (e.g., the new inventory service is the provided service). UPS may enter into an agreement with a network operator where a consolidated UPS account is billed, as opposed to billing separate accounts for each end user and pen.

Digital paper may be an ordinary piece of paper on which a unique proprietary pattern has 20 been printed. A very small portion of the pattern may be associated with a uniquely defined function, such that when that pattern portion is detected by a digital pen, the associated function may be implemented. The pattern may include small dots with a nominal spacing, which are

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slightly displaced from a grid structure. As a customer writes on digital paper using a digital pen, the pen may take periodical snapshots of the pattern (e.g., every 1/100 second). Each snapshot may contain enough information to make a calculation of the exact position of the pen. This information can be stored in the pen and forwarded to an appropriate network operator or service provider after a mapping lookup service, such as mapping lookup service 108, determines what network operator or service provider corresponds to the particular location on the full pattern. Alternatively, the digital pen may be configured to read other forms of code, carrying information indicative of a function.

The complete addressable area covered by the full pattern may be divided into numerous domains varying in size, some of which are pre-defined for certain applications, while others are licensed to companies and authorities. For example, a network operator that provides a set of services to an end user, such as graphical e-mail and SMS, can license a domain. The area within a domain can be used for a range of applications, each with its own functionality assigned.

A digital pen may include, for example, a traditional ink container, a detector, such as a digital camera, an image processor, memory, and a transceiver. One of skill in the art will recognize that a digital pen may include either more or fewer components. For example, some digital pens may not include an ink container. The digital camera may take digital snapshots of the pattern, which may be illuminated by infrared light from the pen and visible to the camera. The image processor may calculate the exact position of the snapshots in the pattern. The position may be determined to the extent that coordinates corresponding to the snapshots can be determined. The memory may store the data from the image processor and may store several fully written pages.

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The transceiver may transmit information by IR light or radio waves. The transceiver, which may be a Bluetooth transceiver, may transmit information via a communications device, such as communications device 104, to mapping lookup service 108. This information may include position information and a pen identification. The transceiver may also transmit data 5 indicative of the writing on the digital paper to the appropriate network operator or service provider. While a digital pen has been described as including a Bluetooth transceiver, one of skill in the art will recognize that other transceivers can be used. The information transfer by the transceiver does not need to be wireless, but instead may be by cable.

An individual end user, such as individual end user 102a, may receive an invoice for 10 services corresponding to the digital pen and digital paper from a variety of entities, such as a network operator, service provider, or payment provider. In response, the individual end user may send payment for the services to the appropriate entity. Sometimes, an individual end user may not get charged for services corresponding to the digital pen and digital paper but still be financially responsible to a network operator for the use of a communication channel provided by 15 the network operator.

Communications devices 104a-104n and 114a-114n receive wireless information from a digital pen operated by an end user and forward it to remote locations, such as mapping lookup service 108, service providers 116a-116n, and/or network operators 110a-110n, via network 106 (which may comprise a wired or wireless communication network, including the Internet). This 20 information may include a pen identification, position information, and handwritten data. A communication device, such as communication device 104a may also receive mapping information from mapping lookup service 108 for forwarding to a digital pen that requested the

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information. In one embodiment, mapping information may be a URL (uniform resource locator) of a network operator or service provider that is offering the service being utilized by the end user. A communication device may be, for example, a mobile telephone, a computer, or a PDA (personal digital assistant).

5 Mapping lookup service 108 may maintain a lookup table that associates position information with mapping information. Position information may include coordinates indicative of a location of a digital pen on digital paper. More particularly, the coordinates correspond to the location of the digital pen on the full pattern. This location may either be assigned a pre-defined application or licensed by a network operator or service provider. Mapping information 10 may include a URL of a network operator or service provider that is offering the service being utilized by the end user (e.g., when the location is licensed).

FIG 1B depicts a lookup table for use by mapping lookup service 108. The lookup table includes a list of coordinates and corresponding URLs. Mapping lookup service 108 may either store the lookup table locally or access it remotely. One of skill in the art will recognize that 15 other information may be stored in a lookup table.

Mapping lookup service 108 receives requests from various end users looking for mapping information. After retrieving the appropriate mapping information, mapping lookup service may send the information to the requesting end user, who can then contact the appropriate network operator or service provider. As mapping lookup service 108 retrieves 20 mapping information, it may collect billing data, noting the pen identification and the network operators or service providers that correspond to the relevant section of the pattern. Based on this billing data, mapping lookup service 108 may periodically send invoices to the various

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network operators and service providers for retrieving mapping information.

Network operators 110a-110n may be entities that provide end users and service providers with channels over which to communicate (e.g., communications services providers). For example, mobile operators or telecom operators, such as AT&T, Sprint, or MCI, may all be network operators. One of ordinary skill in the art will recognize that other organizations that make communications networks available to others may also be network operators.

In addition to providing communications channels (e.g., network access), a network operator, such as network operator 110a, may offer a variety of pen-related services to an end user. For example, network operator 110a may provide graphical e-mail, graphical fax, graphical SMS, digital note pad, or digital paper calendar services to individual end user 102a. The network operator may enter into business relationships with vendors to provide access to vendor information or to offer vendor goods or services. Other services may also be provided. If an individual end user 102a uses a pen-related service provided by network operator 110a, then network operator 110a may send an invoice to individual end user 102a for use of the service and/or for a cost of the goods/services obtained. This invoice may include an itemized list of services used by the end user or may be a lump sum bill. Alternatively, use of pen-related services may be part of an individual end user's overall communications service agreement with the network operator (e.g., no additional payment is necessary).

Service providers 116a-116n may be vendors or other entities that market and support pen-related services to end users. A service provider, such as service provider 116a, that offers a pen-related service for an individual end user or a business end user may be responsible to mapping lookup service 108 for the cost of any mapping information retrievals made for that

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service. Examples of service providers include UPS (as previously explained), an internet-based flower shop, or any other business that offers products and services to customers.

Service providers 116a-116n may enter into agreements with other entities, such as a network operator or payment provider. Each agreement may result in a different billing arrangement. A service provider typically may receive information from a digital pen indicative of a particular service desired by the end user with the pen. After giving the end user the desired service, the service provider may receive an invoice from mapping lookup service 108 for the mapping information retrieval. Depending on the billing arrangement, invoices and payments may also be exchanged in some manner between the service provider, a network operator, a payment provider, and the end user. Specific billing arrangements are more fully explained below with reference to FIGS. 2-5.

Payment providers 118a-118n may be financial institutions involved in agreements with various service providers and end users. A payment provider, such as payment provider 118a, may handle the billing of an end user for a service provider. While payment providers might not be involved in every transaction, they may add particular value when the service provider does not want to assume the financial risk of the transaction. The service provider may still receive an invoice from mapping lookup service 108 for mapping information retrieval and an invoice from a network operator for communications channel usage. In addition, the service provider may send an invoice to payment provider 118a and subsequently receives payment from payment provider 118a. Thus, the service provider may receive payments for services. These payments may be partly used to send payment to mapping lookup service 108. Examples of payment providers are credit card companies, utilities, or other organizations that have relationships with

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Billing Arrangements

FIG. 2 is an exemplary flowchart of a method for a first billing arrangement in a manner consistent with the present invention. This billing arrangement might be particularly well suited to situations where a network operator wants to offer an end user a set of basic pen-related services that might be used more often than other pen-related services. In this arrangement, a network operator provides an individual end user with a service such as a pen-related service. First, the individual end user, such as individual end user 102a, uses a digital pen and digital paper to access a service offered by a network operator, such as network operator 110a (step 202). For example, individual end user 102a may desire to send a graphical e-mail to a specific person. Using digital pen and digital paper, individual end user 102a may write a handwritten message to the intended recipient. Upon completing the message, individual end user 102a may touch the digital pen to an area of the digital paper designated for sending messages. Recognizing the area of the digital paper as a send command, the digital pen may send a request to mapping lookup service 108 via communications device 104a (step 204). The request may include both a pen identification and position information. Position information may include, for example, coordinates in the full proprietary pattern.

Once mapping lookup service 108 has received the request, it may use the position information to lookup and retrieve mapping information that corresponds to the position information in a table (step 206). The mapping information, for example, may include a URL of a location dedicated to the transmission of graphical e-mail. After retrieving the mapping information, mapping lookup service 108 may return the mapping information to the digital pen

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of individual end user 102a using, for example, the pen identification information (step 208).

The digital pen may use the mapping information (e.g., URL) to contact the appropriate network operator 110a, sending network operator 110a pen identification and position information (step 210). Once contact has been established, network operator 110a may instruct the digital pen on what data to send, how to format and tag that data, and where to send that data. The digital pen may then send network operator 110a the appropriate data, including the handwritten data that the digital pen stored when the end user wrote on the digital paper. Thereafter, network operator 110a may perform the particular pen-based service desired by individual end user 102a.

After performing the service, network operator 110a may bill individual end user 102a for use of the service (step 212). For example, network operator 110a may send individual end user 102a an invoice indicating that payment is due for the service. This invoice may include an itemized list of services used by the end user or may be a lump sum bill (invoices may be sent each time a service is provided, or a series of transactions may be batched together and billed to the user at one time). Alternatively, network operator 110a may send the invoice to an employer of individual end user 102a. Payments from individual end user 102a or the user's employer to network operator 110a may be, for example, transaction-based fees or flat rate fees.

Alternatively, use of pen-related services may be part of an individual end user's overall communications service agreement with the network operator (e.g., no additional payment is necessary).

Mapping lookup service 108 may also bill network operator 110a for retrieval of the mapping information associated with network operator 110a (step 214). For example, mapping lookup service 108 may send network operator 110a an invoice indicating that payment is due

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for the information retrieval (e.g., mapping lookup service 108 seeks reimbursement for looking up the mapping information). Mapping lookup service 108 may send an invoice after each information retrieval, wait until a predetermined number of information retrievals have been made, or wait until a predetermined dollar amount has been reached. Also, a periodical invoice 5 may be sent (e.g., weekly, monthly, etc.). Network operator 110a may make payments on invoices as required by predetermined arrangement.

FIG. 3 is an exemplary diagram of an interaction between an individual end user, network operator, and mapping lookup service, when the billing arrangement described in FIG. 2 is used. The dataflow depicted in FIG. 3 corresponds to some of the steps in FIG. 2. Specifically, step 10 302 corresponds to step 204, step 304 corresponds to step 208, step 306 corresponds to step 210, steps 308 and 310 correspond to step 212, and steps 312 and 314 correspond to step 214.

FIG. 4 is an exemplary flowchart of a method for a second billing arrangement in a manner consistent with the present invention. This billing arrangement might be particularly well suited to situations where a service provider may not desire to pass service costs on to its 15 employees or business partners acting as end users. Instead, the service provider may prefer to have costs passed to itself as part of an agreement with a network operator. In this arrangement, a service provider provides a business end user with pen-related services. First, a business end user, such as business end user 112a, may make a request, such as through the use of a digital pen and digital paper for the purpose of utilizing a service offered by service provider 116a (step 20 202). For example, business end user 112a may be an employee or business partner of service provider 116a and desire to use a digital pen-based inventory service. Using a digital pen, business end user 112a may write on digital paper in an appropriate manner. Upon completion

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of the writing, business end user 112a may touch the digital pen to an area of the digital paper designated for sending information. Recognizing the area of the digital paper, the digital pen sends a request to mapping lookup service 108 via communications device 114a (step 404). The request may include a pen identification and position information (e.g., coordinates).

5       Once mapping lookup service 108 has received the request, it uses the position information to lookup and retrieve mapping information that corresponds to the position information in a table (step 406). The mapping information, for example, may include a URL of service provider 116a, who is providing the pen-related service to business end user 112a. After retrieving the mapping information, mapping lookup service 108 returns the mapping

10      information to the digital pen of business end user 112a using, for example, the pen identification information (step 408). The digital pen may use the mapping information (e.g., URL) to contact the appropriate network operator 110a, sending network operator 110a pen identification and position information (step 410). Once contact has been established, network operator 110a may instruct the digital pen on what data to send, how to format and tag that data, and where to send

15      that data. The digital pen may then send network operator 110a the appropriate data, including the handwritten data that the digital pen stored when the end user wrote on the digital paper. Thereafter, service provider 116a may perform the particular pen-based service desired by business end user 112a.

17      In this billing arrangement, business end user 112a may either be an employee of or a  
20      business partner of service provider 116a. Accordingly, service provider 116a may not desire to pass service costs on to business end user 112a. Instead, service provider 116a may enter into an agreement with a network operator where the business end users do not get charged for using the

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communications channels or other services of the network operator. These costs may instead be passed to service provider 116a as part of the agreement. Thus, the network operator may bill service provider 116a per the agreement (step 412). To accomplish this, network operator 110a may send service provider 116a an invoice indicating that payment is due for use of the communication channel that network operator 110a provided. Service provider 116a may then remit to the network operator 110a an appropriate payment.

Mapping lookup service 108 may also bill service provider 116a for retrieval of the mapping information associated with service provider 116a (step 414). For example, mapping lookup service 108 may send service provider 116a an invoice indicating that payment is due for the information retrieval. Mapping lookup service 108 may send an invoice after each information retrieval, wait until a predetermined number of information retrievals have been made, or wait until a predetermined dollar amount has been reached. Also, a periodical invoice may be sent (e.g., weekly, monthly, etc.). Service provider 116a may then remit appropriate payments.

FIG. 5 is an exemplary diagram of an interaction between a business end user, network operator, service provider, and mapping lookup service, when the billing arrangement described in FIG. 4 is used. The dataflow depicted in FIG. 5 corresponds to some of the steps in FIG. 4. Specifically, step 502 corresponds to step 404, step 504 corresponds to step 408, step 506 corresponds to step 410, steps 508 and 510 correspond to step 412, and steps 512 and 514 correspond to step 414.

FIG. 6 is an exemplary flowchart of a method for a third billing arrangement in a manner consistent with the present invention. This billing arrangement might be particularly well suited

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to situations where a service provider may want to offer a pen-related service to an individual end user. In this arrangement, a service provider may provide an individual end user with pen-related services. First, an individual end user, such as individual end user 102a, may use a digital pen and digital paper for the purpose of accessing a service offered by a service provider, such as service provider 116a (step 602). For example, an individual end user 102a desiring to order flowers may do so by scanning with a digital pen a coded portion of an advertisement for flowers. As a result, an order for flowers may be placed to a local flower shop, where the order can be fulfilled and charged to the user's phone bill, for example. Recipient information may be imputed and transmitted using the digital pen, and the identity of the purchaser may be known by 10 a unique identification number transmitted by the pen.

Another example is an individual end user purchasing plane tickets using a coded airline advertisement. In order for a service to be completed, individual end user 102a may first need to touch the digital pen to an area of the digital paper designated for sending messages. Recognizing the area of the digital paper, the digital pen may send a request to mapping lookup 15 service 108 (step 604). The request may include a pen identification and position information (e.g., coordinates).

Once mapping lookup service 108 receives the request, it may use the position information to lookup and retrieve mapping information that corresponds to the position information in a table (step 606). The mapping information, for example, may include a URL of 20 service provider 116a, who is providing the pen-related service to individual end user 102a. After retrieving the mapping information, mapping lookup service 108 may return the mapping information to the digital pen of individual end user 102a using, for example, the pen

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identification information (step 608). The digital pen may use the mapping information (e.g., URL) to contact the appropriate network operator 110a, sending network operator 110a pen identification and position information (step 610). Once contact has been established, network operator 110a may instruct the digital pen on what data to send, how to format and tag that data, and where to send that data. The digital pen may then send network operator 110a the appropriate data, including the handwritten data that the digital pen stored when the end user wrote on the digital paper. Thereafter, service provider 116a may perform the particular pen-based service desired by individual end user 102a.

A network operator, such as network operator 110a may bill both individual end user 102a and service provider 116a for using the communications channels of the network operator (e.g., providing network access) (step 612). For example, network operator 110a may send individual end user 102a and service provider 116a invoices indicating that payment is due for carrying data over its communications channels.

Service provider 116a may choose to bill individual end user 102a for the service performed. For example, as previously mentioned, an individual end user 102a who purchased flowers using digital pen and digital paper may receive an invoice for the flowers directly from service provider 116a. Alternatively, individual end user 102a may receive an invoice for the flowers from network operator 110a as a part of the invoice normally received from network operator 110a. In that case, network operator 110a may reimburse service provider 116a for the purchased product/service (e.g., flowers).

Mapping lookup service 108 may also bill service provider 116a for retrieval of the mapping information associated with service provider 116a (step 214). For example, mapping

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lookup service 108 may send service provider 116a an invoice indicating that payment is due for the information retrieval. Mapping lookup service 108 may send an invoice after each information retrieval, wait until a predetermined number of information retrievals have been made, or wait until a predetermined dollar amount has been reached. Also, a periodical invoice 5 may be sent (e.g., weekly, monthly, etc.). Service provider 116a may then remit appropriate payments.

FIG. 7 is an exemplary diagram of the interaction between a business end user, network operator, service provider, and mapping lookup service, when the billing arrangement described in FIG. 6 is used. The dataflow depicted in FIG. 7 corresponds to some of the steps in FIG. 6. 10 Specifically, step 702 corresponds to step 604, step 704 corresponds to step 608, step 706 corresponds to step 610, steps 708, 710, 712, and 714 correspond to step 612, and steps 716 and 718 correspond to step 614.

FIG. 8 is an exemplary flowchart of a method for a fourth billing arrangement in a manner consistent with the present invention. This billing arrangement might be particularly 15 well suited to situations where the service provider does not want to assume the financial risk of the transaction and would prefer to use the service of, for example, a third party financial institution. In this arrangement, a service provider or network operator may provide an individual end user with pen-related services. First, an individual end user, such as individual end user 102a, may use a digital pen and digital paper for the purpose of accessing a service offered by a network operator or a service provider, such as service provider 116a (step 802). 20 For example, an individual end user 102a desiring to order furniture may do so by using an advertisement for furniture with parts of the advertisement printed on digital paper. By scanning

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appropriate portions of the advertisement with a digital pen, an order for furniture can be placed to a furniture shop, where the order can be fulfilled. In order for a service to be completed, individual end user 102a may first need to touch the digital pen to various areas of the digital paper to select options such as fabric choice. The user may then scan an area designated for sending messages. Recognizing the area of the digital paper, the digital pen may send a request to mapping lookup service 108 via communications device 104a (step 804). The request may include a pen identification and position information (e.g., coordinates).

Once mapping lookup service 108 receives the request, it may use the position information to lookup and retrieve mapping information corresponding to the position information in a table (step 806). The mapping information, for example, may include a URL of service provider 116a, who is providing the pen-related service to individual end user 102a. After retrieving the mapping information, mapping lookup service 108 may return the mapping information to the digital pen of individual end user 102a using, for example, the pen identification information (step 808). The digital pen may use the mapping information (e.g., URL) to contact the appropriate network operator 110a, sending network operator 110a pen identification and position information (step 810). Once contact has been established, network operator 110a may instruct the digital pen on what data to send, how to format and tag that data, and where to send that data. The digital pen may then send network operator 110a the appropriate data, including the handwritten data that the digital pen stored when the end user wrote on the digital paper. Thereafter, service provider 116a may perform the particular pen-based service desired by individual end user 102a.

A network operator, such as network operator 110a may bill both individual end user

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102a and service provider 116a for using the communications channels of the network operator (step 812). For example, network operator 110a may send individual end user 102a and service provider 116a invoices indicating that payment is due for carrying data over its communications channels.

Since furniture is a relatively costly acquisition, the service provider or network operator may not want to assume the risk of collecting payment on a periodical bill (e.g., monthly phone bill). Thus, a payment provider, such as payment provider 118a, might handle the billing of an end user for a service provider. Accordingly, payment provider 118a essentially assumes the financial risk of collecting payments. Service provider 116a may send an invoice to payment provider 118a and subsequently receives payment from payment provider 118a (step 814). Thus, the service provider may immediately receive reimbursement. In turn, payment provider 118a may send an invoice to individual end user 102a for the services provided by or through the service provider 116a (step 816). One of skill in the art will recognize that a network operator could provide the end user the pen-related service. In that case, the network operator may 15 perform the processing described above with reference to service providers 116a.

Mapping lookup service 108 may also bill service provider 116a for retrieval of the mapping information associated with service provider 116a (step 818). For example, mapping lookup service 108 may send service provider 116a an invoice indicating that payment is due for the information retrieval. Mapping lookup service 108 may send an invoice after each 20 information retrieval, wait until a predetermined number of information retrievals have been made, or wait until a predetermined dollar amount has been reached. Also, a periodical invoice may be sent (e.g., weekly, monthly, etc.). Service provider 116a may then remit payment

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appropriately.

FIG. 9 is an exemplary diagram of the interaction between a business end user, network operator, service provider, payment provider, and mapping lookup service, when the billing arrangement described in FIG. 8 is used. The dataflow depicted in FIG. 9 corresponds to some of the steps in FIG. 8. Specifically, step 902 corresponds to step 804, step 904 corresponds to step 808, step 906 corresponds to step 810, steps 908, 910, 912, and 914 correspond to step 912, steps 916 and 918 correspond to step 814, steps 920 and 922 correspond to step 816, and steps 924 and 926 correspond to step 818.

Co-pending with the application for this patent are applications entitled Systems and

10 Methods for Information Storage based on Swedish Application No. 0000947-2, filed March 21, 2000, and U.S. Provisional Application No. 60/207,839, filed May 30, 2000; Secured Access Using a Coordinate System based on Swedish Application No. 0000942-3, filed March 21, 2000, and U.S. Provisional Application No. 60/207,850 filed on May 30, 2000; System and Method for Printing by Using a Position Coding Pattern based on Swedish Application No. 0001245-0, filed 15 on April 5, 2000, and U.S. Provisional Application No. 60/210,651, filed on June 9, 2000; Apparatus and Methods Relating to Image Coding based on Swedish Application No. 0000950-6, filed on March 21, 2000, and U.S. Provisional Application No. 60/207,838, filed on May 30, 2000; Apparatus and Methods for Determining Spatial Orientation based on Swedish Application No. 0000951-4, filed on March 21, 2000, and U.S. Provisional Application No. 60/207,844, filed 20 on May 30, 2000; System and Method for Determining Positional Information based on Swedish Application No. 0000949-8, filed March 21, 2000, and U.S. Provisional Application No. 60/207,885, filed on May 30, 2000; Method and System for Transferring and Displaying

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Graphical Objects based on Swedish Application No. 0000941-5, filed March 21, 2000, and U.S. Provisional Application No. 60/208,165, filed May 31, 2000; Online Graphical Message Service based on Swedish Application No. 0000944-9, filed March 21, 2000, and U.S. Provisional Application No. 60/207,881, filed May 30, 2000; Method and System for Digitizing Freehand Graphics With User-Selected Properties based on Swedish Application No. 0000945-6, filed March 21, 2000, U.S. Provisional Application No. 60/207,882, filed May 30, 2000; Data Form Having a Position-Coding Pattern Detectable by an Optical Sensor based on Swedish Application No. 0001236-9, filed April 5, 2000, and U.S. Provisional Application No. 60/208,167, filed May 31, 2000; Method and Apparatus for Managing Valuable Documents based on Swedish Application No. 0001252-6, filed April 5, 2000, and U.S. Provisional Application No. 60/210,653 filed June 9, 2000; Method and Apparatus for Information Management based on Swedish Application No. 0001253-4 filed April 5, 2000, and U.S. Provisional Application No. 60/210,652, filed June 9, 2000; Device and Method for Communication based on Swedish Application No. 0000940-7, filed March 21, 2000, and U.S. Provisional Application No. 60/208,166, filed May 31, 2000; Information-Related Devices and Methods based on Swedish Application No. 0001235-1, filed April 5, 2000, and U.S. Provisional Application No. 60/210,647, filed June 9, 2000; Processing of Documents based on Swedish Application No. 0000954-8, filed March 21, 2000, and U.S. Provisional Application No. 60/207,849, filed May 30, 2000; Secure Signature Checking System based on Swedish Application No. 0000943-1, filed March 21, 2000, and U.S. Provisional Application No. 60/207,880, filed May 30, 2000; Identification of Virtual Raster Pattern, based on Swedish Application No. 0001235-1, filed April 5, 2000, and U.S. Provisional Application No.

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60/210,647, filed June 9, 2000, and Swedish Application No. 0004132-7, filed November 10, 2000, and U.S. Provisional Application No. \_\_\_\_\_, filed January 12, 2001; and a new U.S. Provisional Application entitled Communications Services Methods and Systems, filed March 21, 2001.

5        The technical disclosures of each of the above-listed U.S. applications, U.S. provisional applications, and Swedish applications are hereby incorporated herein by reference. As used herein, the incorporation of a "technical disclosure" excludes incorporation of information characterizing the related art, or characterizing advantages or objects of this invention over the related art.

10      While the present invention has been described in connection with various embodiments, many modifications will be readily apparent to those skilled in the art. For example, while the billing arrangements in FIGS. 2-9 have been described separately, one skilled in the art will appreciate that some or all of these arrangements can exist concurrently. One skilled in the art will also appreciate that all or part of the systems and methods consistent with the present 15 invention may be stored on or read from computer-readable media, such as secondary storage devices, like hard disks, floppy disks, and CD-ROM; a carrier wave received from a network such as the Internet; or other forms of ROM or RAM. In addition, while the steps of the various flow charts and diagrams are presented in particular orders, one skilled in the art will appreciate that the steps may be performed in different orders, some steps may be omitted, and some steps 20 added — all within the spirit and scope of the invention.

Further, while the description employs an exemplary embodiment of a mapping lookup service, the invention in its broadest sense is not so limited. The code detected by the pen need

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not be part of a larger map, but may instead contain a more directly executable instruction. The invention, therefore is not limited to the disclosure herein, but is intended to cover any adaptations or variations thereof.

In the foregoing Description of Preferred Embodiments, various features of the invention are grouped together in a single embodiment for purposes of streamlining the disclosure. This method of disclosure is not to be interpreted as reflecting an intention that the claimed invention requires more features than are expressly recited in each claim. Rather, as the following claims reflect, inventive aspects lie in less than all features of a single foregoing disclosed embodiment. Thus, the following claims are hereby incorporated into this Description of the Preferred Embodiments, with each claim standing on its own as a separate preferred embodiment of the invention.

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# The Business Model for Anoto Core Services

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## Services Overview

The Anoto technology is aiming to provide a wide variety of business and consumer services. The key characteristics will be ease of use and mobility. It is a new technology and hence it is not possible to project all the services that will be offered. The product should have the possibility to be adapted to significantly changing demand, services and volume.

The initial product segments are divided as follows:

Graphical Communication:	Communication services defined in the Anoto Paper Requirement Specification. Typically hosted by a Mobile Operator or Service Provider. Includes the service G-Mail, G-Fax, and G-SMS.
Digital Note Pads:	A service that stores your handwritten notes on your PC. The transmission can be done either over Internet or locally directly to your PC.
Digital Paper Calendars:	Sends the calendar entries you make in your paper calendar to your PC, through a local transmission or over Internet, and synchronizes it with your PC calendar, e.g. Lotus Notes or Microsoft Outlook.

## Anoto Core Services

Anoto Core services are technically supported by Anoto, however it is expected that service developers will further refine and differentiate such services.

All paper manufacturers have the right but not an obligation to print the related service functions keys on Anoto paper, however each Anoto Core paper must have a minimum of one Anoto Core service included.

Note that a Notepad license doesn't permit printing of calendar products or other pre-paid products, unless agreed between the parties in a separate agreement.

All operators have the right to offer, with exclusivity for their pen subscriptions, all Anoto Core services. An operator must offer as a minimum all Core Graphical Communication Services, however from a quality of service, market and revenue perspective Anoto strongly recommend them to offer all Anoto Core services. New Anoto Core services will be introduced one or two times yearly.

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The current status of the Anoto Core services are as follows:

Class of Services	Service	Project	Anoto Core status
"Graphical Communications"	G-Mail	Project Paris	<i>Confirmed Anoto Core Defined</i>
	G-Fax	Project Paris	<i>Confirmed Anoto Core Defined</i>
	SMS Basic	Project Paris	<i>Confirmed Anoto Core</i>
	G-SMS	Project EA?	<i>Confirmed Anoto Core</i>
	Message pad Phone	To be defined	To be defined
"Note-pad"	Note-pad Basic Phone	Project Paris	<i>Confirmed Anoto Core Defined</i>
	Note-pad PC	To be defined	To be defined NOT a Core Service
"Message pad PC"	Message pad PC	To be defined	To be defined
"Other"	Web Calendar synchronization Basic	Organizer Project	<i>Preliminary Anoto Core</i>
	Local Calendar synchronization	Organizer Project	To be defined NOT a Core Service
	Business Card	To be defined	To be defined
"Boxes"	Info-boxes	To be defined	<i>Preliminary Anoto Core</i>

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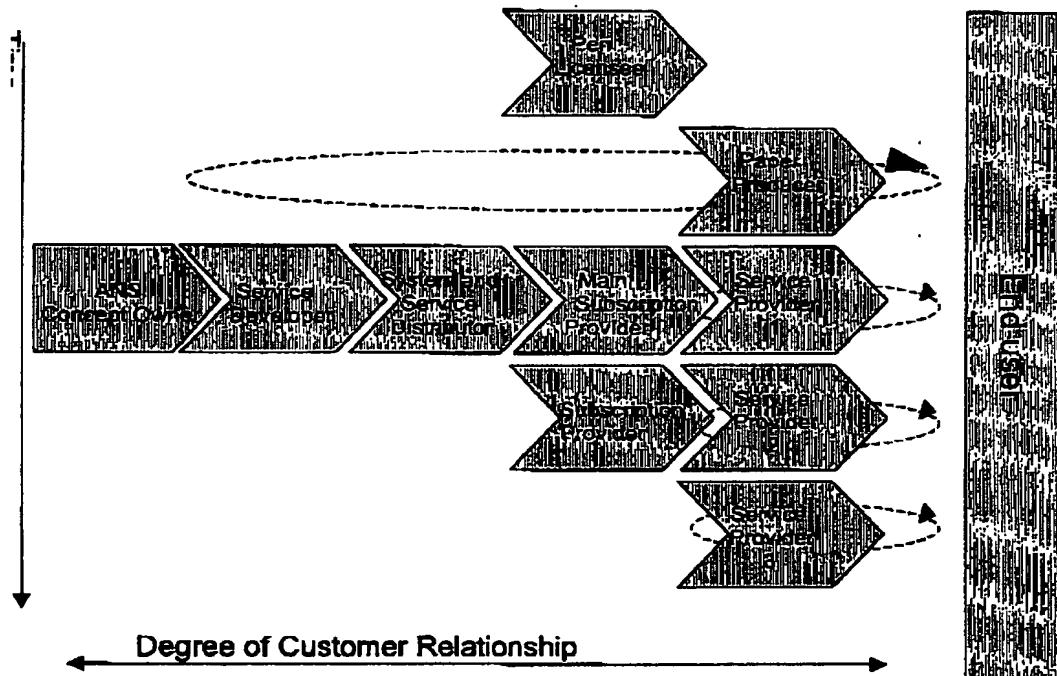
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## **Parties of the Value Chain**



*Picture 1: The Value Chain*

ANS

**ANS** Mapping dots related to functions and services. There can only be one logical ANS.

## **Concept Owners**

**Concept Owners**  
Owners of the Anoto Concept

## **Service Developer**

**The company that develops a specific service and may own patents for that specific service. There can be more than one company having patent rights for a specific service.**

#### **System and Service Distributor**

**The party that negotiates the contract with an operator for Anoto Core services. Often, but not always, the service distributor installs and supports the functionality of a service towards the service provider.**

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Huvudfaktur Koden

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01-04-06**Subscription Provider**

A party providing a subscription relationship for other services to the end user.

**Main Subscription Provider**

The party providing a subscription relationship for Anoto Core services to the end user. This is usually a telecom operator.

**Service Provider**

The party that markets, supports and bills a service to end customers.

**Pen Licensee**

The party that buys a license to produce, market and/or distribute digital pens.

**Paper Producer**

The Company that provides access to a service by providing paper enabling that service.

**Please read as reference this list of "Stakeholders" and their roles as defined in an internal document;**

Stakeholder Name	Definition	Role
Paper Producer	The party (designing), manufacturing and selling the paper products through its channels. OR The party printing paper products (standard printer shop) for some other party such as a service provider.	Supply its customers with Anoto patterned paper.
Pen Licensee	The party (designing), (manufacturing), branding supporting and selling the pen.	(Design), (manufacture), brand, sell and support the pen towards the end user.
Anoto Core Subscription Provider (Main Subscription Provider)	The party providing a subscription relationship for Anoto Core services to the end user.	This is the party managing the pen subscription, and the party which Anoto invoices for Anoto Core Services.
Subscription Provider	A party providing a subscription relationship for other services to the end user.	This party has a financial relation to the end user, and performs billing for some end user services.
Service Provider	The party providing the end-user with the service.	This party has the financial responsibility towards Anoto for the ANS look-ups made for all services used by their P-End users. Their invoicing could be made through a subscription provider or directly to the P-end user.

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Carrier	The party providing internet access for the Pen user.	Traffic provider – but what is the actual role in the product development project?
Hosting Provider	The party hosting a service.	Running a system where the input data to some extent is pen generated.
Service Developer	The party developing a service - or some part thereof such as graphic design, functional design, system integration etc.	Using the SDK developed by Anoto to create applications.
P-End User	This is the end user using Anoto pen and Anoto patterned paper for some function or service.	Using the end applications (and subsequently paying for them)
Anoto	The company driving a global standard for Digital pen and paper.	Providing a standard and infrastructure to support a multitude of services.

## Business Model

Anoto has the intention to create a global standard for digital paper based on the Anoto technology. The aim is to introduce high volume, broadly used consumer and business services and products.

The Business Model for Anoto is based on Revenue Sharing between the Parties involved. The market price of a service is fixed and depending on the overall market conditions in each country and is revised once or twice a year. The Service provider is to some extent entitled to set his own price, but must always transfer a minimum income per transaction.

### ***The Pen, Paper and Service Provider Revenue***

The service provider (operator or independent mobile portal) does the billing and the marketing activities and is responsible for the customer relation. The service provider might host the portal and services, but the hosting could also be provided by a Hosting Provider.

The revenue is done on an income per transaction as been agreed upon. As a part of the deal the service provider receives Y% per transaction. The Pen and Paper Service Providers receives in total 15% of the income per transaction.

This leaves X% to be divided between the other parties in the value chain.

$$100\% - Y\% - 5\% - 10\% = X\%$$

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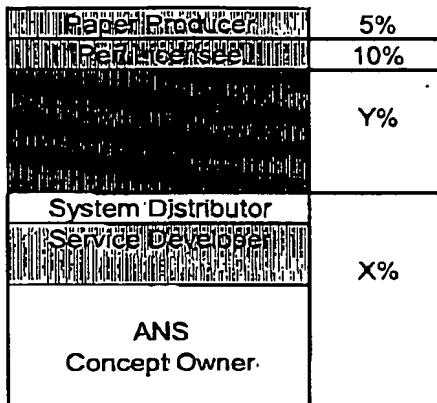
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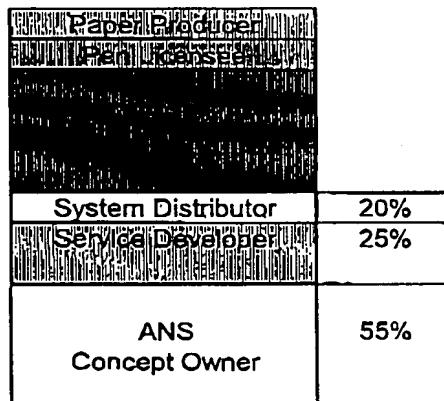
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*Picture 2: The general Business Model for revenue sharing between the parties****Distributor, Developer, ANS and Concept Owner Revenue***

It is of interest both to the rest of the parties to keep the X% as large as possible. How the X% is shared between the rest of the parties in value chain and their roles and responsibilities is described below.

*Picture 3: The general Business Model for revenue sharing between the System Distributor, Service Developer and the ANS and Concept Owners.*

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## **Example of Revenue Sharing**

Pen Licensee and Paper Producer	Y		15%
Service Provider (Operator)			59%
	X	26%	
System Distributor	20%	of X	5,2%
Service Developer	25%	of X	6,5%
ANS. Concept Owners	55%	of X	14,3%

§

Picture 4: The Revenue Sharing between the parties for Anoto Core services.

## **Roles and Responsibilities**

Terms and Conditions will be specified for each licensee in separate License Agreements. Below is a brief overview of the roles and responsibilities of the parties.

### **ANS Look-up Fee**

The mapping of data related to a service in the ANS (Anoto Name Server) is essential for the Anoto Concept. There can be only one logical ANS. A Look-up fee covers the cost of using the ANS.

### **Concept Owners**

Owner of the Anoto concept. Anoto has essential Patents and Intellectual Property Rights (IPR) covering the Anoto Concept.

### **Service Developer**

The Service Developer develops a specific service and may own Service patents and IPR's for that specific service. There can be more than one company having patent or IPR rights for a specific service. The Service Developer will have to settle this between these parties.

### **System and Service Distributor**

The System and Service Distributor negotiates the contract with an operator for Anoto Core services. Often, but not always, the service distributor installs and supports the functionality of a service towards the service provider and becomes then also a System Distributor.

The System and Service Distributor may not negotiate the value Y% to go below a specified and fixed percentage.

### **Service Provider**

The party that markets, supports and bills a service to end customers. This is usually a telecom operator but could also be a mobile portal.

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01-04-06**Pen Licensee**

The party that buys a license to produce, market and/or distribute digital pens.

**Paper Producer**

The Company that provides access to a service by providing paper enabling that service.

**Revenue Sharing**

Paper Standardization	5,0%
ANS	20,0%
Core IPR Anoto	30,0%

Y	15%
	59%

X	26%
System Distributor	20%
Service Developer	25%
Paper Standardization	5%
Concept Owner	30%
ANS	20%

Picture 5: The Revenue Sharing model for Anoto Core services.

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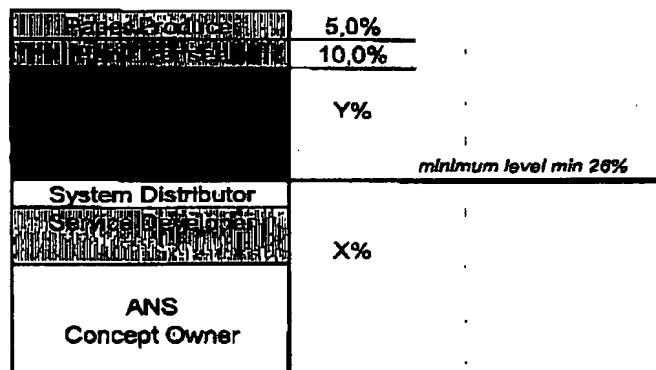
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## **Service Distribution Agreement**

The System Distributor does not have the right to negotiate the percentage of X to be below 26% for Anoto Core Services, unless otherwise agreed with Anoto.



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## **Anoto, Service Distributor or similar acting as Service Provider**

The System Distributor does not have the right to negotiate the percentage of X to be below 61% for Anoto Core Services, unless otherwise agreed with Anoto. This leaves X% to be divided between the parties as follows;

Paper Production	5,0%
Service Development	10,0%
minimum level min 61%	
Hosting Service Provider System Sales	
Service Development Service IPR	
Paper Standardization ANS Core IPR Anoto	

Hosting Service Provider System Sales	60,0%
Service Development	10,0%
Service IPR	2,5%
Paper Standardization	2,5%
ANS	10,0%
Core IPR Anoto	15,0%

## **Collection and Distribution of Revenues**

In order to collect and distribute the revenues to all parties involved, there must be a Revenue Collect and Distribution Procedure.

The objective is to enable the System Distributor to enter into Agreements on behalf of Anoto around the Anoto Concepts that are based on the Business Model described in this document, and with the purpose of introducing Anoto services at the Service Provider. The detailed rights shall be included in the Agreement between Anoto and the System Distributor.

The objective of the Parties is that the Collection and Distribution of Revenues shall be the responsibility of Anoto, but could be performed by an external Clearing House.

This would require that the Service Distributor include a clause covering the transfer of the revenue collection right, and other related terms and conditions, in their agreement with the Service Provider.

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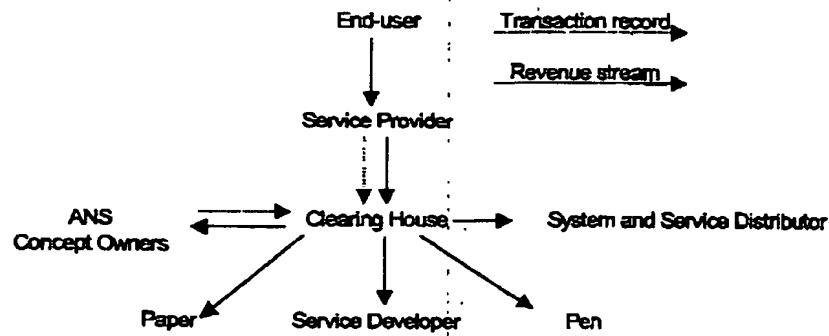
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*Picture 6: The collection and distribution of revenues to all parties performed by an external Clearing House.*

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<b>System and Service Distributor</b>	5
<b>Hosting Provider</b>	5
<b>Subscription Provider</b>	5
<b>Main Subscription Provider</b>	5
<b>Service Provider</b>	5
<b>Pen Licensee</b>	5
<b>Paper Producer</b>	5
<b>BUSINESS MODEL</b>	5
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<b>EXAMPLE OF REVENUE SHARING</b>	7
<b>ROLES AND RESPONSIBILITIES</b>	7
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<b>Concept Owners</b>	8
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<b>ANOTO SERVICE DISTRIBUTOR OR SIMILAR ACTING AS SERVICE PROVIDER</b>	10
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## Services Overview

The Anoto technology is aiming to provide a wide variety of business and consumer services. The key characteristics will be ease of use and mobility. It is a new technology and hence it is not possible to project all the services that will be offered. The product should have the possibility to be adapted to significantly changing demand, services and volume.

The initial product segments are divided as follows:

Graphical Communication:	Communication services defined in the Anoto Paper Requirement Specification. Typically hosted by a Mobile Operator or Service Provider. Includes the service G-Mail, G-Fax, and G-SMS.
Digital Note Pads:	A service that stores your handwritten notes on your PC. The transmission can be done either over Internet or locally directly to your PC.
Digital Paper Calendars:	Sends the calendar entries you make in your paper calendar to your PC, through a local transmission or over Internet, and synchronizes it with your PC calendar, e.g. Lotus Notes or Microsoft Outlook.

## Open Services

Anoto does not technically standardize open services.

Some Open services are potential Core services and it is up to the Service Developer and/or the Service Provider to bring the service to an "Anoto SIG (Special Interest Group)" and propose the service to become a new Core Service.

New Core services will be introduced one or two times yearly.

Open services are services developed by Service Developers using an Anoto Service Development Toolkit.

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### Examples of Open Service Categories are as follows:

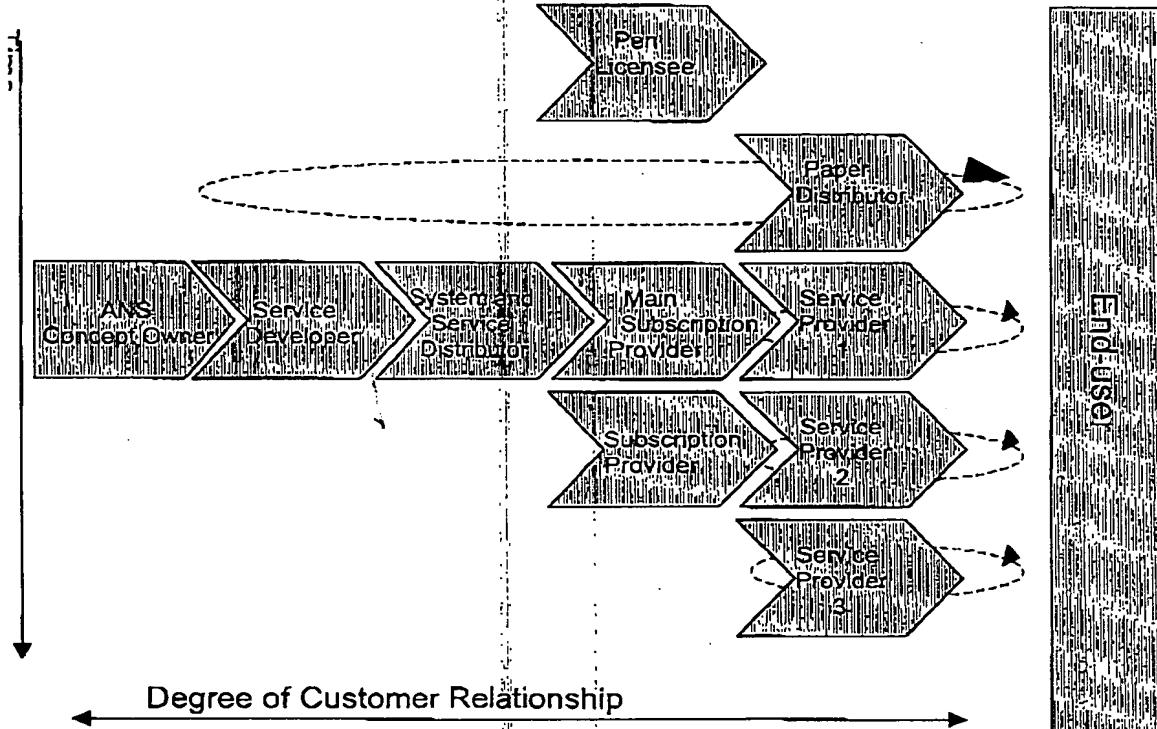
Categories	Service	Note
<b>Check-Boxes</b>	As defined by the Service owner (Service Developer or Service Provider)	Excluded are the boxes used in Core Services
"Graphical Communications"	As defined by the Service owner (Service Developer or Service Provider)	For example an improved G-mail, G-SMS
"General Application"	As defined by the Service owner (Service Developer or Service Provider)	Compare with "Change line thickness" or "Change line color"
"Business to Pen-user"	As defined by the Service owner (Service Developer or Service Provider)	
Commerce	As defined by the Service owner (Service Developer or Service Provider)	
Others		

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Page 4  
01-04-06*Anoto*™  
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Anoto Business Model Open Services 001108.doc**Parties of the Value Chain**

Picture 1: The Value Chain



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Huvudfakten Kassan

Page 5  
01-04-06**ANS**

Mapping dots, commands and names onto functions and services. There can be only one.

**Concept Owners**

Owners of the Anoto Concept.

**Service Developer**

The company that develops a specific service and may own patents for that specific service. There can be more than one company having patent rights for a specific service.

**System and Service Distributor**

The party that negotiates the contract with an operator for APRS services. Often, but not always, the service distributor installs and supports the functionality of a service towards the service provider.

**Hosting Provider**

The party hosting a service.

**Subscription Provider**

A party providing a subscription relationship for other services to the end user.

**Main Subscription Provider**

The party providing a subscription relationship for APRS services to the end user. This is usually a telecom operator.

**Service Provider**

The party that markets, supports and bills a service to end customers.

**Pen Licensee**

The party that buys a license to produce, market and/or distribute digital pens.

**Paper Producer**

The Company that provides access to a service by providing paper enabling that service.

**Business Model**

Anoto has an intention to create a global standard for digital paper based on the Anoto technology. The aim is to introduce high volume, broadly used consumer and business services and products.

The Business Model for Anoto is based on Revenue Sharing between the Parties. The Service provider is entitled to set his own price, but must always transfer a minimum income. The minimum income could for example be based on a transaction or per month fee.

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## The Pen, Paper and Service Provider Revenue

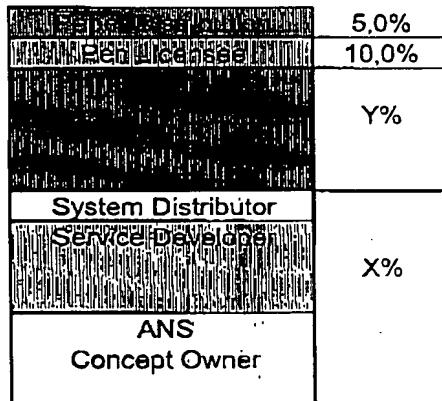
The revenue sharing is done as been agreed upon. As a part of the deal the service provider receives Y% per transaction. The Pen Licensee receives 10% of the income.

Five percent (5%) of the service revenue is allocated to Paper Distribution. It is the responsibility of the Service Developer to negotiate the responsibility, allocation of these 5% between the System Distributor and the Service Provider. The business model should communicate to all parties how the responsibility and allocation is managed.

The Service Developer will receive 5% covering the Paper Distribution. It is the responsibility of the Service Developer to negotiate the terms and conditions between himself, the Service Distributor and the Service Provider. It is also the responsibility of the Service Developer to communicate to all parties involved how the responsibilities and the revenues are distributed.

This leaves X% to be divided between the other parties in the value chain.

$$100\% - Y\% - 15\% = X\%$$



*Picture 2: The general Business Model for revenue sharing between the parties*

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## **Distributor, Developer, ANS and Concept Owner Revenue**

It is of interest both to the rest of the parties to keep the X% as large as possible.

How the X% is shared between the rest of the parties in value chain and their roles and responsibilities is described below.

General Business Model	
Pen Licensee and Paper Distributor	
System Distributor	20,0%
Service Developer	30,0%
ANS Concept Owner	50,0%

Picture 3: The general Business Model for revenue sharing between the System Distributor, Service Developer and the ANS and Concept Owners.

### **Example of Revenue Sharing**

Service Provider (Operator) Y Pen Licensee and Paper Distributor		59%
		15%
X	26%	
System Distributor	20%	of X 5,2%
Service Developer	30%	of X 7,8%
ANS, Concept Owners	50%	of X 13,0%
CHECK SUM	100%	26,0%

Picture 4: The Revenue Sharing between the parties for Open services.

### **Roles and Responsibilities**

Terms and Conditions will be specified for each licensee in separate License Agreements. Below is a brief overview of the roles and responsibilities of the parties.

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Page 8  
01-04-06Anoto™  
Created by evac  
Anoto Business Model Open Services 001108.doc**ANS Look-up Fee**

The mapping of dots, commands and names onto functions and services in the ANS (Anoto Name Server) is essential for the Anoto Concept. There can be only one ANS. A Look-up fee covers the cost of using the ANS.

**Concept Owners**

Owners of essential IPR and around the Anoto concept..

Anoto has essential Patents and Intellectual Property Rights (IPR) concerning the Anoto Concept.

**Service Developer**

The Service Developer develops a specific service and may own Service patents and IPR's for that specific service. There can be more than one company having patent or IPR rights for a specific service. The Service Developer will have to settle this between these parties.

The Service Developer may however freely make use of the Concept Patents and IPR's that his Service otherwise might interfere with his Service.

The Service Developer will receive 5% covering the Paper Distribution. It is the responsibility of the Service Developer to negotiate the terms and conditions between himself, the Service Distributor and the Service Provider. It is also the responsibility of the Service Developer to communicate to all parties involved how the responsibilities and the revenues are distributed.

**System and Service Distributor**

The Service Distributor negotiates the contract with an operator for Open services.

The System and Service Distributor may not negotiate the value Y% to go below a specified and fixed percentage.

**Service Provider**

The party that markets, supports and bills a service to end customers. This is usually a telecom operator but could also be a mobile portal.

**Pen Licensee**

The party that buys a license to produce, market and/or distribute digital pens.

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Int'l Patent Application

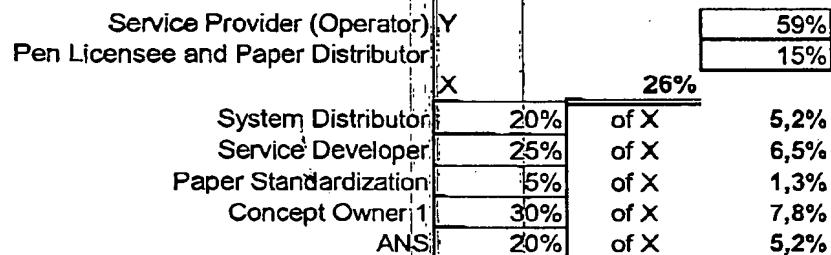
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## Revenue Sharing

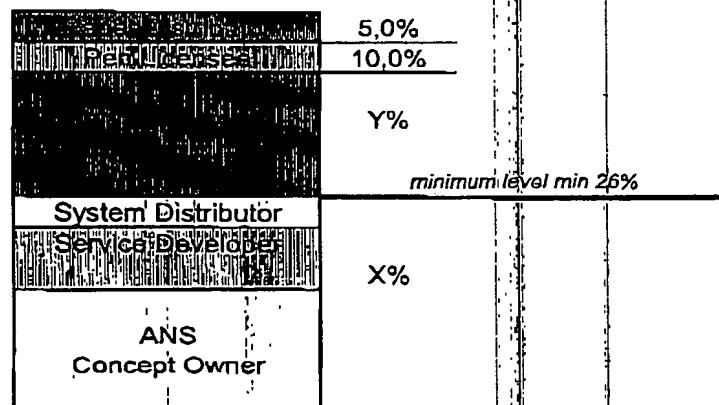
ANS	20,0%
Core IPR Anoto	30,0%



Picture 5: The Revenue Sharing between the parties for Open services.

## Service Distribution Agreement

The System Distributor does not have the right to negotiate the percentage of X to be below 26% for non-APRS Services unless otherwise agreed with Anoto.



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## Anoto, Service Distributor or similar acting as a Service Provider

The System Distributor does not have the right to negotiate the percentage of X to be below 61% for non-APRS Services, unless otherwise agreed with Anoto. This leaves X% to be divided between the parties as follows;

System Sales	5,0%
Service Development	10,0%
<i>minimum level min. 61%</i>	
Hosting Service Provider System Sales	
Service Development	10,0%
Service IPR	2,5%
Paper Standardization	2,5%
ANS	10,0%
Core IPR E//	7,5%
Core IPR Anoto	7,5%

## Collection and Distribution of Revenues

In order to collect and distribute the revenues to all parties involved, there must be a Revenue Collect and Distribution Procedure.

The objective is that System Distributor has the right to enter into Agreements on behalf of Anoto around the Anoto Concepts that are based on the Business Model described in this document, and with the purpose of enabling Anoto services at the Service Provider. The detailed rights shall be included in the Agreement between Anoto and the System Distributor.

The objective of the Parties is that the Collection and Distribution of Revenues shall be the responsibility of Anoto, but could be performed by an external Clearing House.

This would require that the Service Distributor include a clause covering the transfer of the revenue collection right, and other related terms and conditions, in their agreement with the Service Provider.

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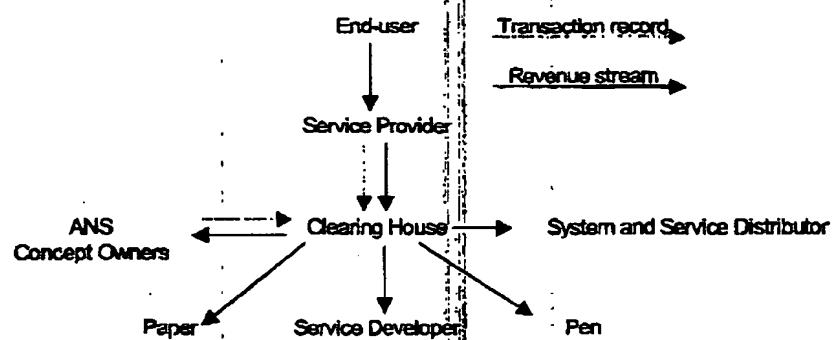
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*Picture 6: The collection and distribution of revenues to all parties performed by an external Clearing House*

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Bilaga 3

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# Business Model Operators & Service Providers

Joakim Nelson

Draft III

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## Basic Assumptions

- Operators/Service Providers (OSP), Pen Providers, Paper Providers and Anoto shall be part of the revenue sharing model. Actors re-selling/distributing components should not!
- OSP shall have the major part of the revenues generated (in order to get them interested)
- A minimal level for Anoto, Paper and Pen Providers must be guaranteed (so that we all get a share regardless of the end-user price). Percentage levels are related to end-user price down to the minimal level.
- All fixed and O&M costs are transferred to OSP. That implies that the OSP has to pay for O&M regardless if we host the service or if the ASH are placed in their premises.
- ASHs and other network elements apart from the ANS are fully financed by the OSP or any other service provider
- The model submitted is to be displayed to OSPs. A different presentation is necessary for Pen and Paper Providers since they get share of our revenue, not from the total.

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## Online Services

### Service Definition

- Three types of services:

Core Services: Anoto develop the services and deploy them to the market in "all" basic paper products

- Open Services. A specific service provider acquire a unique pattern and develop a service for that specific pattern.

Open Core Services: Utilize a core service but has a link to a new service

e.g. My Secretary as a unique string in the Subject or E-mail field

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Int'l Patent classification

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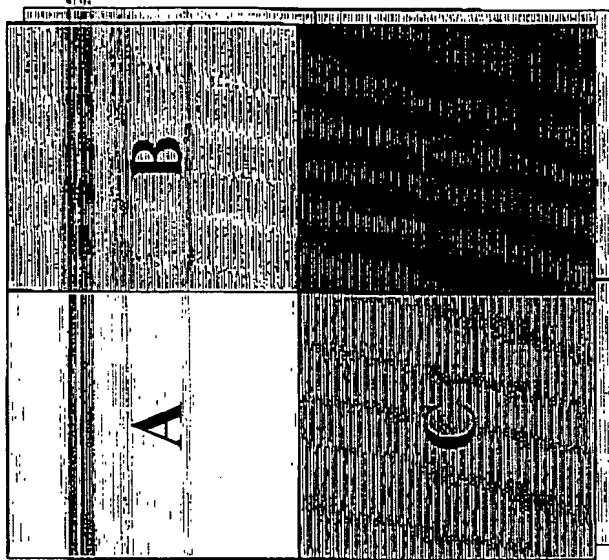
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C3

## Anoto Consulting Services

- All Alternatives must be supported
- Alternative A and B will be prioritised in order to drive C & D

Anoto Operator  
Hosted Hosted



### Alternative B & D Will

- Direct Relation attractive in the short time perspective but some A & C projects need to be deployed in order to understand the operator's infrastructure/system
- Sales via Channel
  - The outlined alternatives do not have any impact on the overall business model!

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## Market Components and Marketing Strategy One Page Summary



- Not part of Revenue Sharing

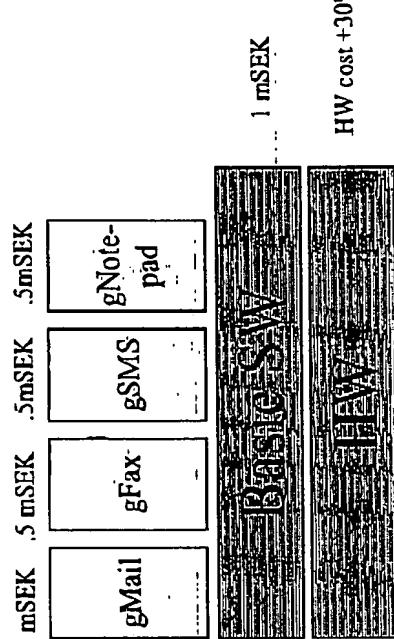
- Business on its own

- Direct or sales via channels – channels

OSP  
get margin on sales:  
50%

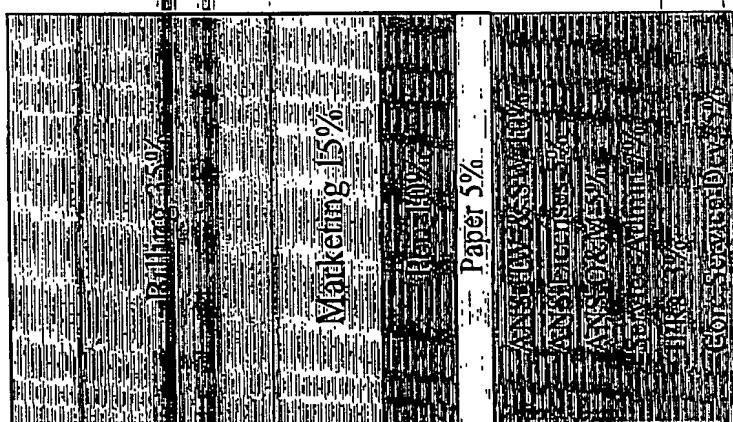
- SW modules as products

### Example of Basic Blocks (fictitious pricing):



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35%



HW cost +30%

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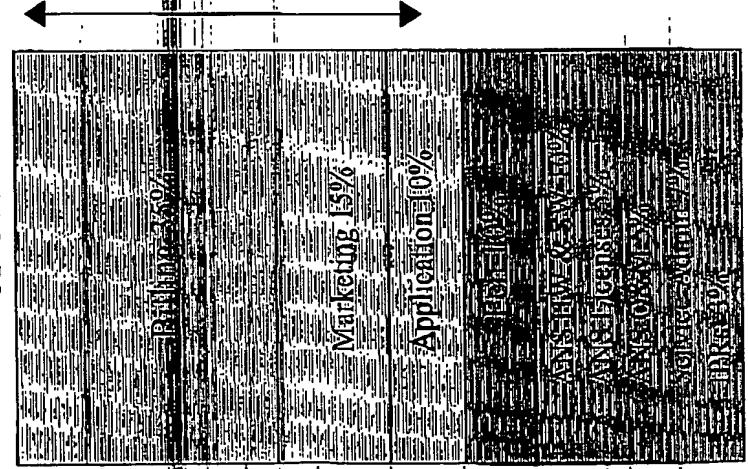
*Anoto*

Anoto - A New Business Model for the Future

## Services



- No paper kick-back
- Billing handled by SP
- Billing handled by SP or other actor.



- Not part of Revenue Sharing Business on its own
- Direct or sales via channels
- SP channels get margin in sales!
- HW can be provided by Anoto

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Example of Implementation:



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### Network Components and Revenue Sharing Costs

- Same shares as core due to same costs

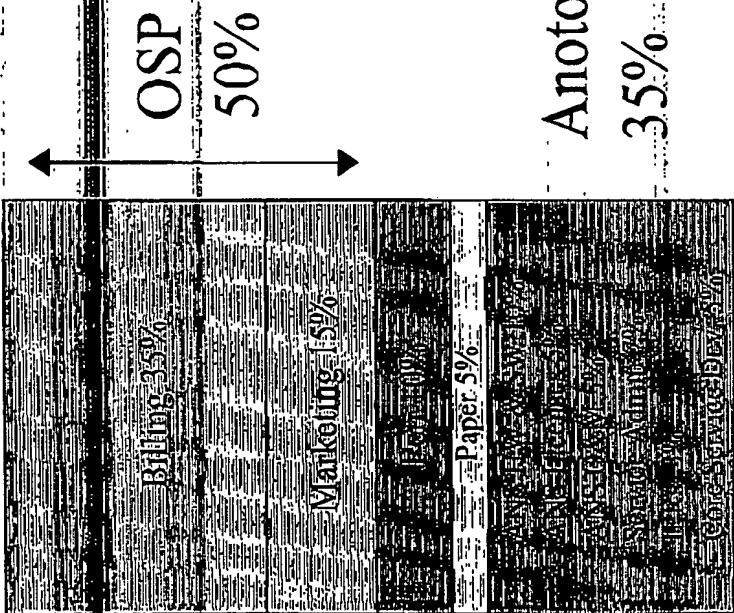


- SP may generate higher total revenue with unique services

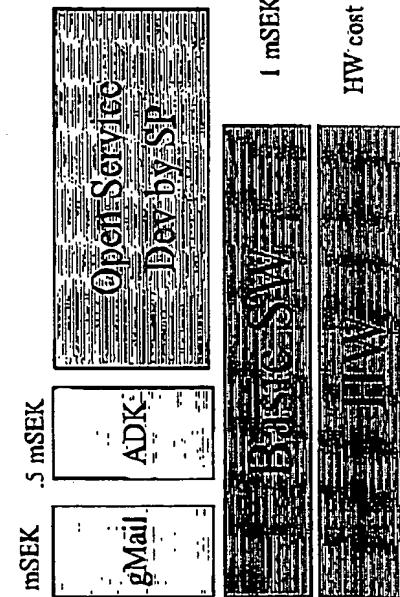
- Not part of Revenue Sharing

- Business on its own

- Direct or sales via channels – channels get margining on sales!
- SW modules as products



Example of Basic Blocks (fictitious pricing):



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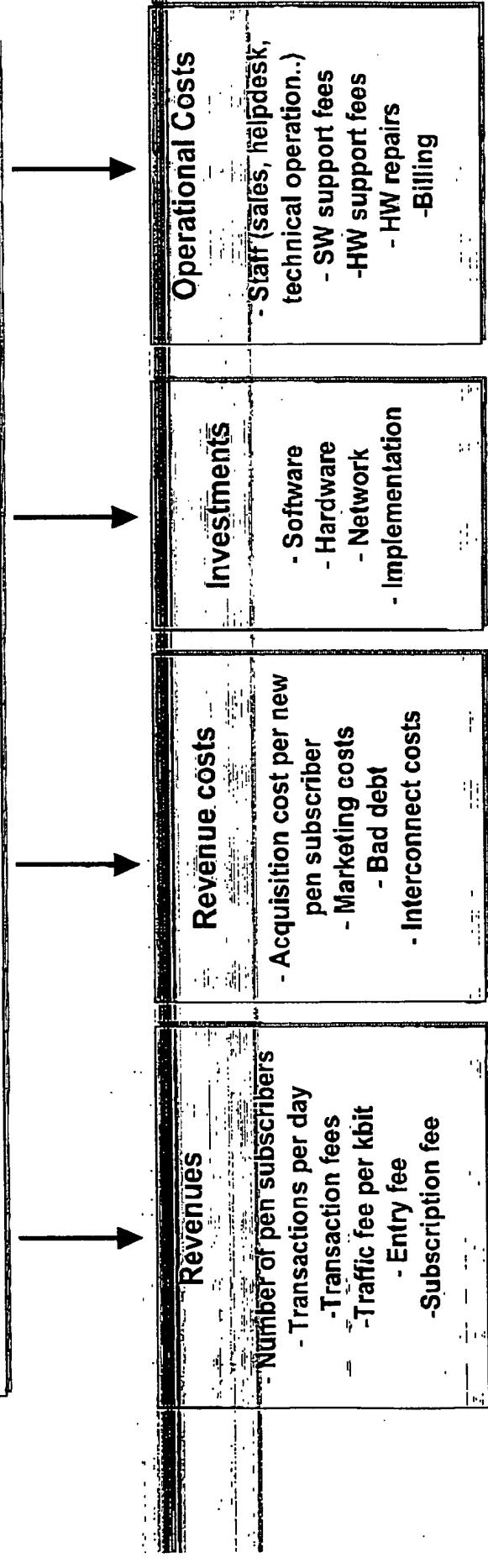
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Bilaga 5

# Business Plan for an Operator

## The total business case for introducing and operating the Anoto concept

**Calculation of operational result, "Bottom line", Cashflow and the value growth based on the Anoto concept**

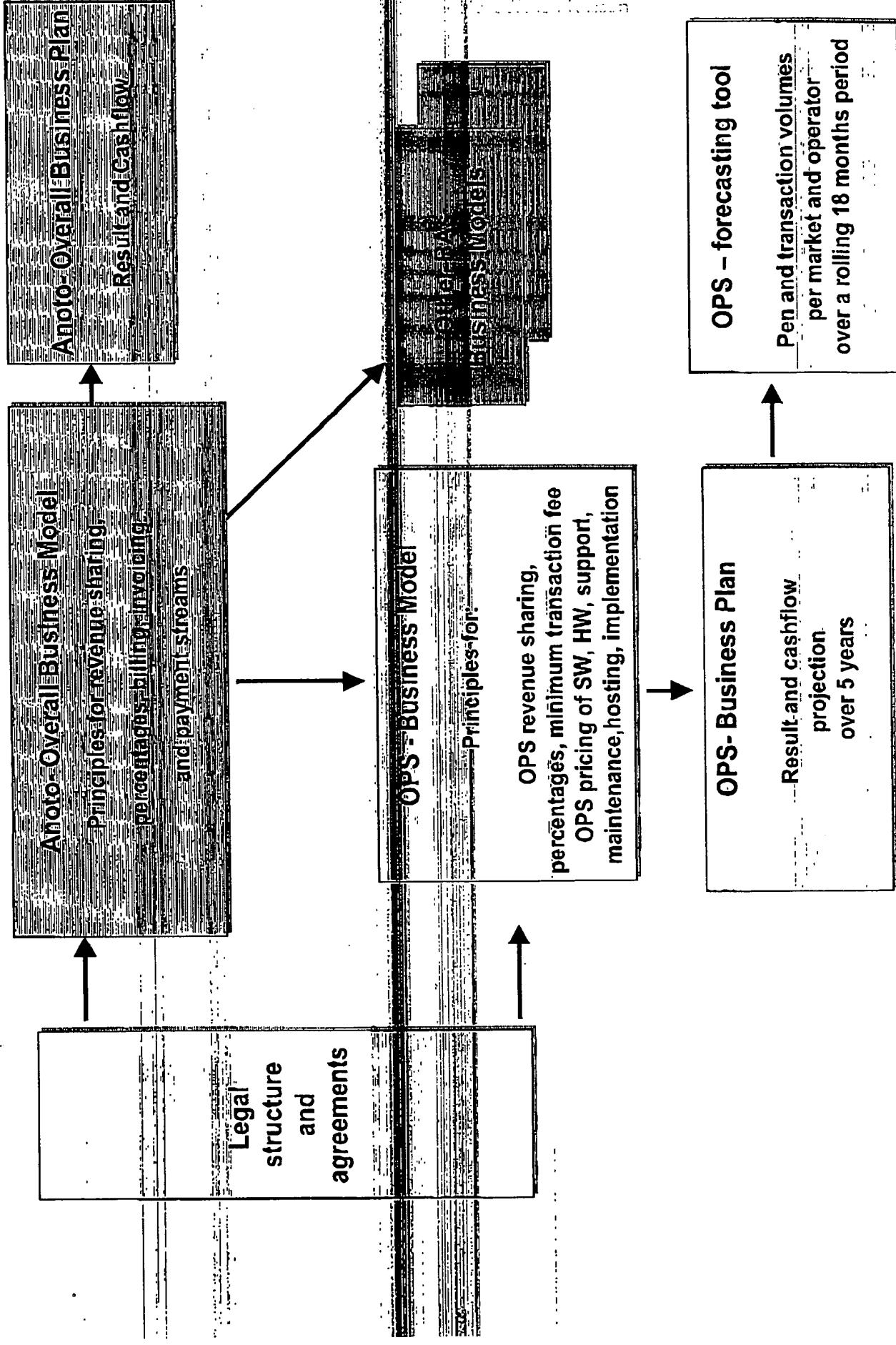


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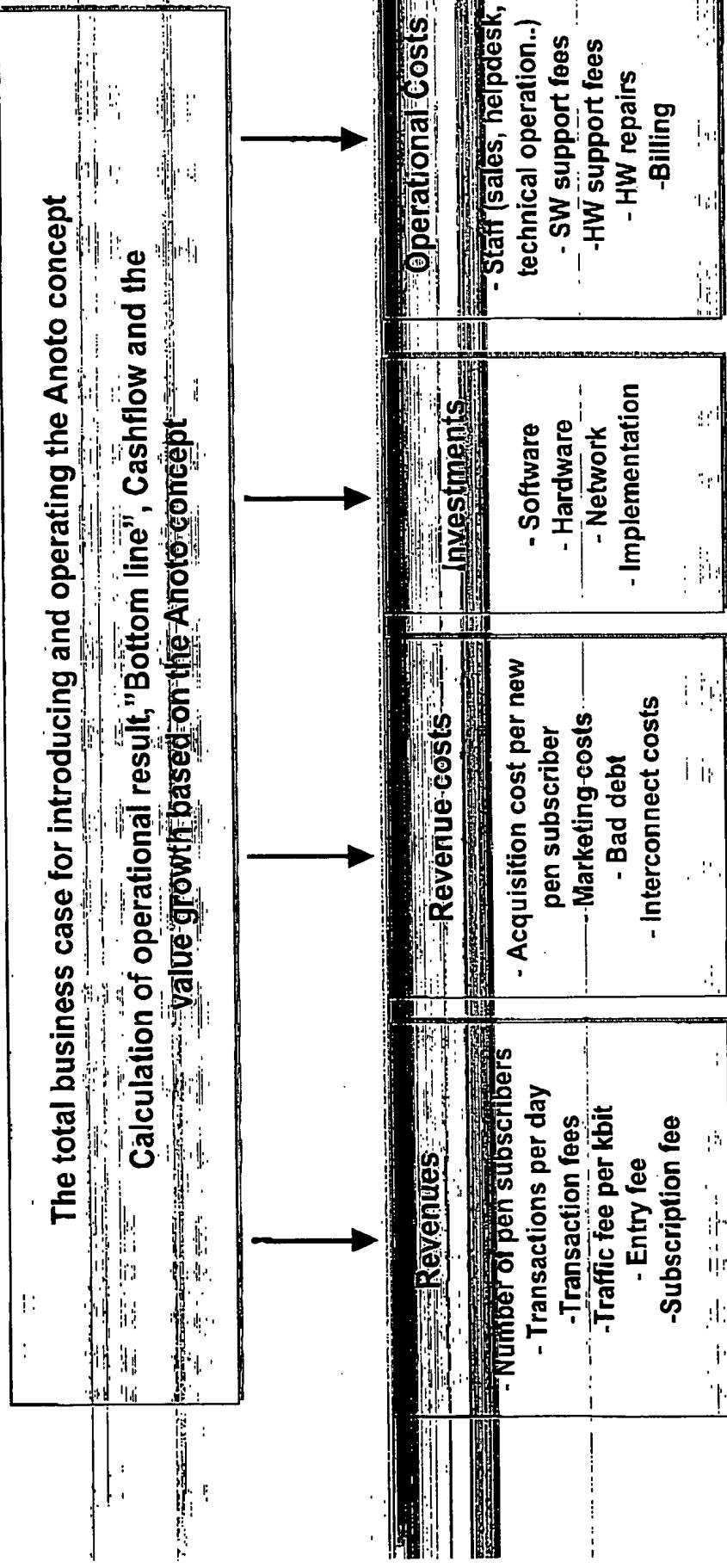
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Bilaga 51

# OPS Business Model and Business Plan



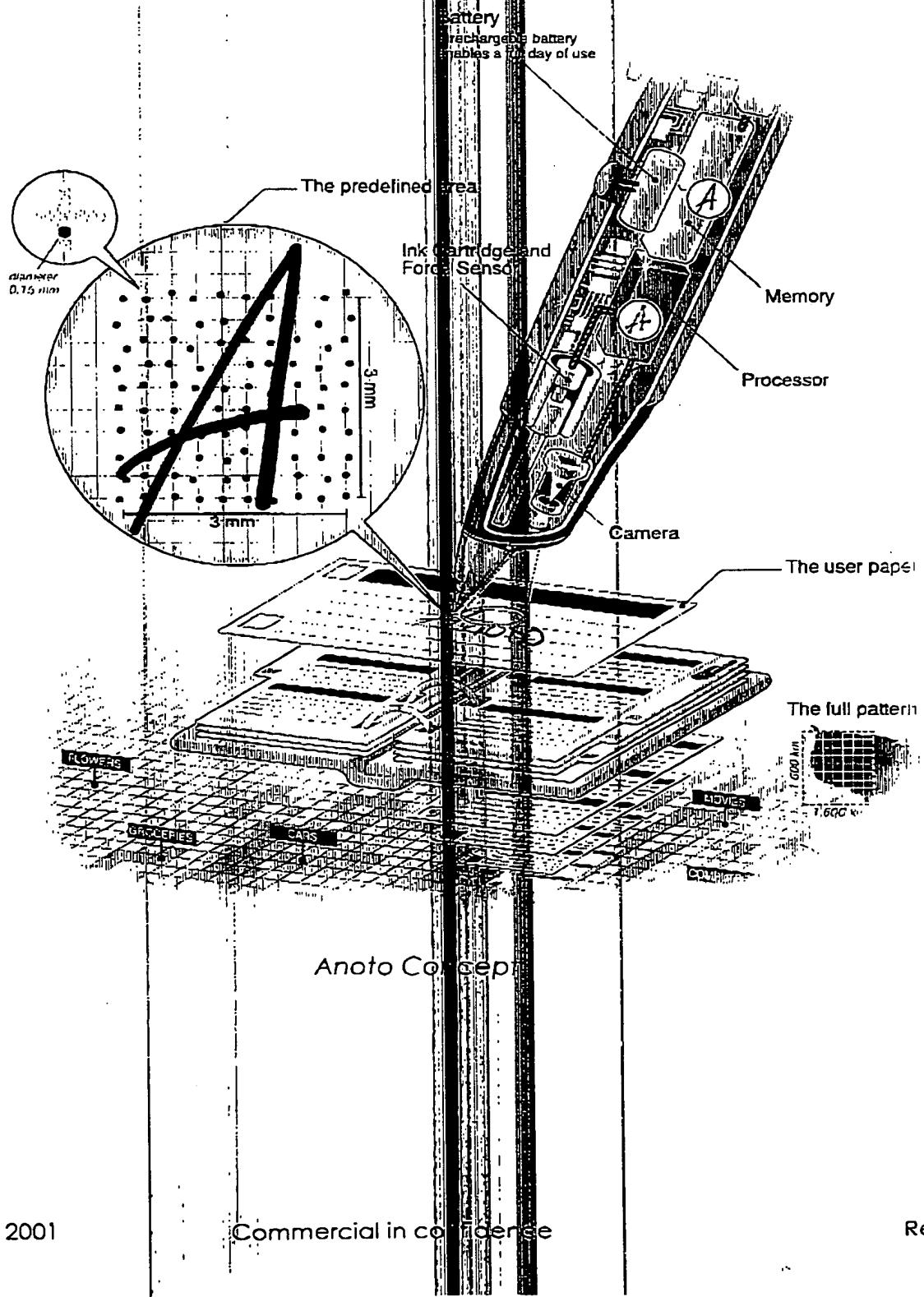
# Business Plan for an Operator



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Bilaga 6



Anoto

# Executive Overview

## New services, with a Human touch!

Anoto drives the revolution in pen and paper. For the first time ever, we have enabled wireless business to take off directly from paper by uniting handwriting with everyday digital communication. Anoto has developed a platform that allows you to send anything you write on paper to any computer in the world.

*The Anoto concept is one of the most attractive service concepts for future mobile communications.*

## The Concept

The Anoto concept is a new standard for digital paper and handwritten information. The Anoto concept builds on three main parts, the paper, the pen and the service infrastructure.

The paper is printed with a unique pattern that constitutes a huge "map" (several times larger than the surface of the US), allowing the pen to position itself with high accuracy. All written information is recorded and can be sent to any receiver. The information doesn't only include a perfect digital copy of the handwritten information, but also optional information such as time, date and the unique identity of this pen. The pattern is perceived as transparent and allows for other graphical content to be printed "on top". The pattern does not add any significant extra production cost and a majority of the worlds paper industry (more than 70% of all European and US high-end calendar companies, 3M, Esselte, etc) is supporting the new digital paper.

The pen is a revolution in itself including state-of-the-art technology in image processing. The pen is equipped with a traditional ink container, a digital camera, processor/memory and a Bluetooth™ transceiver. The pen can store an entire notepad with written information and send any selected page when the SEND-box is ticked. Several vendors will develop digital pens enabling Anoto functionality.

The service infrastructure supports the mapping of any pen requesting the execution of a specific service to the mobile operator/service provider operating it. The infrastructure identifies

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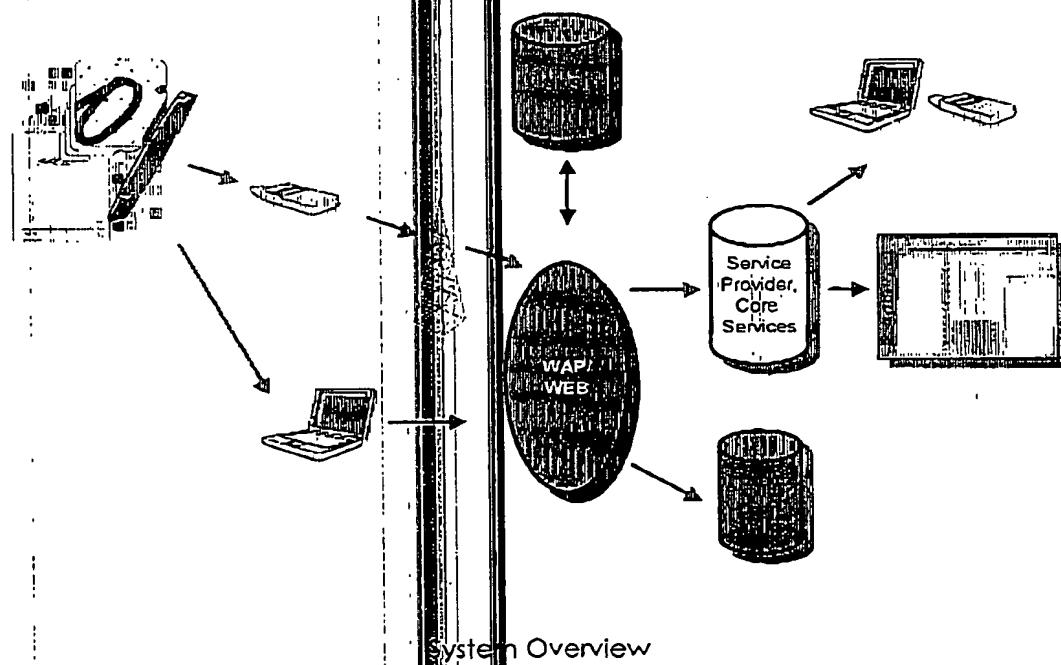
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the pen, the paper type and the service activated, and returns a URL to the pen, pointing out the location of the application server. Application servers can be located anywhere, but will typically be hosted by the mobile operator/service provider or by Anoto. The interaction between the pen and the service infrastructure is encrypted in order to secure the information exchange and enable e-commerce applications.

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The size of the pattern (see above) enables the assignment of functionality to different areas of the pattern. By combining pattern areas with different functionality on paper, with a corresponding graphical design, mobile paper-based services can be designed. Examples are sending graphical e-mail, updating a paper organizer and ordering flowers directly from a paper ad. The potential for attractive unique services is immense. A more detailed description is included in chapter 4.



## The Market

Mobile communications has never been more in focus than today and the launch of 3G services, with huge investments required, will put even more focus on attractive and prosperous services. While new technologies bring new capabilities and more speed to mobile networks, the need for end-users to really utilize these prevailing benefits become more and more evident. New technologies and related networks do not have a one-to-one match with new services but are sure enablers.

Today, about 8 years after introduction, services such as SMS are booming and are, in some market segments, a vital part of mobile

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communications. Messaging is assumed to be one of the most important services for the future and observations from fixed Internet, iMode and SMS-chat show that new customer groups, like youth, are utilizing and embracing new services. Simplicity and immediate user benefits are as important today as they were when mobile communications was introduced. Long customer relations and services that promote these are important for most mobile operators since they prevent churn and establish a sustainable business relation.

Equally important for the success of mobile communications as the network capabilities are the technologies related to adjacent devices. Technologies such as Bluetooth™, new battery technologies and camera/optical technology have enabled mobile phones, organizers/PDAs, laptops and digital cameras to be a part of the mobile domain. New technologies are not only introduced to business customers but also directly to the consumer market due to attractive pricing of devices and services, which was not the case some years ago.

Still, the acceptance of new technologies is sometimes cumbersome and the human aspects are essential. Personal, human and attractive services are key for prosperous mobile business, today and tomorrow. The Anoto concept is one of the most attractive concepts overall. The idea of the Anoto concept is based on one of the most fundamental ways to communicate, to utilize pen and paper. The uniqueness is that Anoto allows handwritten information to be digital and thereby processed and sent by use of mobile communications. One of the most well proven skills of mankind, to communicate with paper and pen, has now moved into a new dimension. Handwritten messages, calendar changes, e-commerce, etc. can now be pen-based as well as digital and personal.

## **What will this mean for the mobile operator/service provider?**

The Anoto concept offers mobile operators/service providers to develop new services as well as increase traffic to existing and new networks. Anoto will develop a small number of core services that allow mobile operators/service providers to get up and running with minimal efforts. Mobile operators/service providers can design their own unique services by use of the ADK (Application Development Kit) or bring in additional revenues from other prosperous services, developed and offered by external

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service providers.

The investments and the implementation work necessary are perceived to be moderate and even small in relation to potential revenues. Anoto strives for easy-to-install and -maintain packages for mobile operators and service providers. Anoto administers and develops the basic functionality in order to guarantee the quality of the Anoto enabled services.

Anoto will remain a partner during the entire lifetime of the service business, and will also act as a partner for service development. Since the mobile operator/service provider is the natural interface to the end-user, Anoto is developing the tools to support this business approach.

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## The Future

Anoto is committed to exploring our unique concept and bringing it into the daily life of the end-users, mobile communications. The ambition is to test and verify the concept during mid 2001 and to initiate the first commercial activities together with a handful of mobile operators/service providers at the end of this year. The overwhelming feedback from main industry players supports a fast deployment of the concept as the de-facto standard for mobile paper-based services. Demonstrations and tests have shown the power and emerging maturity of the concept. Paper and pen manufacturers are already today preparing commercial products and market activities.

The next steps of mobile communications are for sure personal and human and the Anoto concept is one of the leading new ideas for the future.

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*Bilaga 7*

# Business Overview

## Executive summary

The main characteristics of the Anoto Business Concept from a mobile operator/Service provider perspective are:

- Extensive partnerships over the traditional business borders and the resulting business opportunities based on the Anoto technology.
- A business model that leaves the actual traffic revenue with the mobile operator/service provider.
- A business model including a transaction-based revenue that is shared between the partners necessary to facilitate a mobile paper based service initiated by the end customer.
- A financially compelling business case that strongly supports EBITDA growth but still includes moderate investments and a low financial risk.
- The Anoto partner network and supporting activities that actively will promote the adaptation of the Anoto technology by new partners and thereby inspire new advanced services.
- The Application Development Kit that will constitute the tool for speedily designing and implementing new services.
- The Pen Portal that represents an additional communication interface towards the end customer
- An evolving business model that caters for the necessary flexibility to include totally new services and partners as well as to include revenue components such as transaction-based fee, flat rate, subscription fee, license fee and all the combinations thereof

## Introduction to the Anoto Business Concept

The basis behind The Anoto Business Concept is the establishment of numerous partnerships between Anoto and the companies sharing the Anoto technology, and also between these companies themselves. These partnerships will be the foundation

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for constantly evolving business opportunities related to bringing paper and pen into the digital world through an increasing number of new services! Anoto's mission is to stimulate a rapidly increasing number of partnerships that eventually will lead to a de facto standard for digital paper and pens. This is done through a partner network program, supporting activities and a business model with high credibility.

Mobile operator/service provider valuations are today largely driven by EBITDA (Earnings Before Tax Income and Depreciation) growth, especially the high expectations related to the future EBITDA growth linked to the mobile data usage. The Anoto Business Concept has the potential to effectively support this growth and also be a substantial part in meeting these expectations. This is done through taking full advantage of the fact that most people have been educated in writing and do not even reflect over using a pen for writing or drawing. The concept of connecting these skills with the ability to wirelessly communicate what you have produced on a paper will represent a very low threshold for most people in adapting to the digital pen and paper. Consequently, the penetration and the usage has the potential to be much higher in a shorter time period compared with many other mobile data services that are expected to fill up the mobile data networks. The operational costs are kept low since the Anoto services can be considered as add-on services, which means that the mobile service providers' existing infrastructure, marketing and distribution can be utilized. A significant operational cost is normally related to the churn factor and the high acquisition costs for attracting new end-customers as a replacement for the lost ones. The Anoto Business Concept will increase the end-customer loyalty not only through the actual pen subscription but also through new and innovative partnerships resulting in joint services/offers.

On top of the revenue potential and the EBITDA growth, The Anoto Business Concept reflects a financially compelling business case. The up-front investments and the necessary additional investments over time are moderate and scalable, which results in a low and controlled financial risk.

The combination of the factors mentioned above results in an attractive and expanding service offer over time to the end-customers, thereby resulting in a significant revenue potential. Even with a reasonable take-up of the Anoto services among the end-customers, a positive cash flow and EBITDA growth can be reached just within one year after a commercial launch of the

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services.

## **The Anoto Business Concept based on the Core Services**

The Anoto Business Concept based on the Core Services is built around a strong yet simple service offer to the end-customer. The Core Services offer includes graphical communications services such as graphical SMS, messaging, fax and notepad. The possibility for the end-customer to easily communicate through handwritten notes, drawings and pictures with other people over mobile phones or any type of computer adds an extra value to the end-customer. That extra value will therefore motivate the end-customer to pay a transaction fee for each usage.

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*Anoto*

For the Core Services, the Anoto Business Concept includes a transaction-based revenue sharing model that involves the partners necessary to facilitate the services. The Mobile operator/service provider will own and bill the end-customer but since both the paper and pen producers as well as the mobile operator/service provider and Anoto will be a part of facilitating the services, they will also be a part of the revenue sharing model. Through this business model all partners will have a strong incentive to further ensure the progress towards an expanding service concept and general availability. Anoto will administrate the collection and distribution of the revenues among the partners involved in the specific services that are utilized by the end-customer.

Beside the transaction-based revenue, the mobile operator/service provider will further benefit through higher utilization of the network and the generated revenue in terms of the traffic fee.

The Pen Portal is included in the Anoto Business Concept. The end-customer can through the portal administrate all their Anoto services settings and share information from the mobile operator/service provider or advertiser. The portal will constitute an additional and natural interface towards the end-customer that will further strengthen the relationship with the end-customer.

## **The Anoto Business Concept evolution over time**

With the Core Services (the graphical communication services) reaching a penetration level where they will be considered as a basic part of the standard service package, the erosion of the transaction-based revenue will probably begin. This will result from the common availability of the pens, paper and the services, as well as an increased competitive market situation. Taking this into account, the Anoto Business Concept must provide elements that continuously stimulate the partners to further develop advanced services offer with existing and new partners. These services will have the capability to generate new types of revenue streams.

With the customer drive for multimedia services and the emerging business opportunities linked to the mobile data networks, the value chain and the revenue streams will adapt to the business scenario that gives the best return on the investments. The service provider that today invests in mobile data networks will see a new

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mix of revenue streams including revenues from e-commerce, advertisement, entertainment, subscription and usage of narrow and broadband networks, as well as usage connectivity revenue. The Service Provider is responsible for delivery of operations of service and will in most cases own the customer interface through the actual subscriptions, the billing, the customer portals and new partnerships. The Content Providers, which are expected to be the main revenue generators, will be responsible for content development and may pay for delivery of content to the Service Provider's customers. The Solutions Developers will be responsible for developing industry-specific solutions for the Service Providers customers for example system integrators and consultants etc.

The Anoto Business Concept can offer business opportunities to most of the actors in the value chain mentioned above. And with the foreseen rapid exploitation of these opportunities a business concept is required that allows the business models to be in tune with the actual business situations and the corresponding partnerships. These business models over time will include more partners and in many cases partnerships with higher complexity compared to the transaction-based revenue sharing model for the Core Services.

The Anoto Business Concept will therefore constantly be refined to match the partners' needs for sufficient revenue streams and the alignment with the overall streams in the value chains.

A vital component of The Anoto Business Concept to stimulate partnerships and new revolutionary services is the Application Development Kit. The Application Kit will be provided to the mobile operator/service providers that want to achieve their own service strategy through prototyping and designing new services or simulate combinations of different types of services. With the support of this Development Kit the mobile operator/service provider can smoothly and frequently present new services on the market. The services can, of course, be developed with a focus on both the needs of the private end-customers as well as on special solutions for the corporate market.

Finally, The Anoto Business Concept benefits the mobile operator/service provider that in the near future will expand or further strengthen their position in the value chain. Through the Anoto Business Concept, the mobile operator/service provider has the opportunity to further leverage its telecom expertise and end-customer experience. In this way the mobile operator/service provider can build an even stronger market position as the natural gatekeeper through which the end-customer accesses most of

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the services and thereby retain the customer ownership in a fast changing market situation.

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# Anotos Business model

- Anotos business model for partners
  - Is based on revenue sharing principles for all services that are developed on the Anoto technology and when the Anotos look up server is used (ANS)
  - Anotos business model for the user partners
    - Users of services can subscribe as many services as the user wants
    - The user is paying for the value of using one service once
- Anotos business model for the user partners
  - Anotos will provide partners with tools and support

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# Anotos Business model

Roles & responsibilities within Anoto business model

- Anoto
- Pen Provider
- Service provider
- Paper provider

Subscription provider

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# Anotos Business model definitions

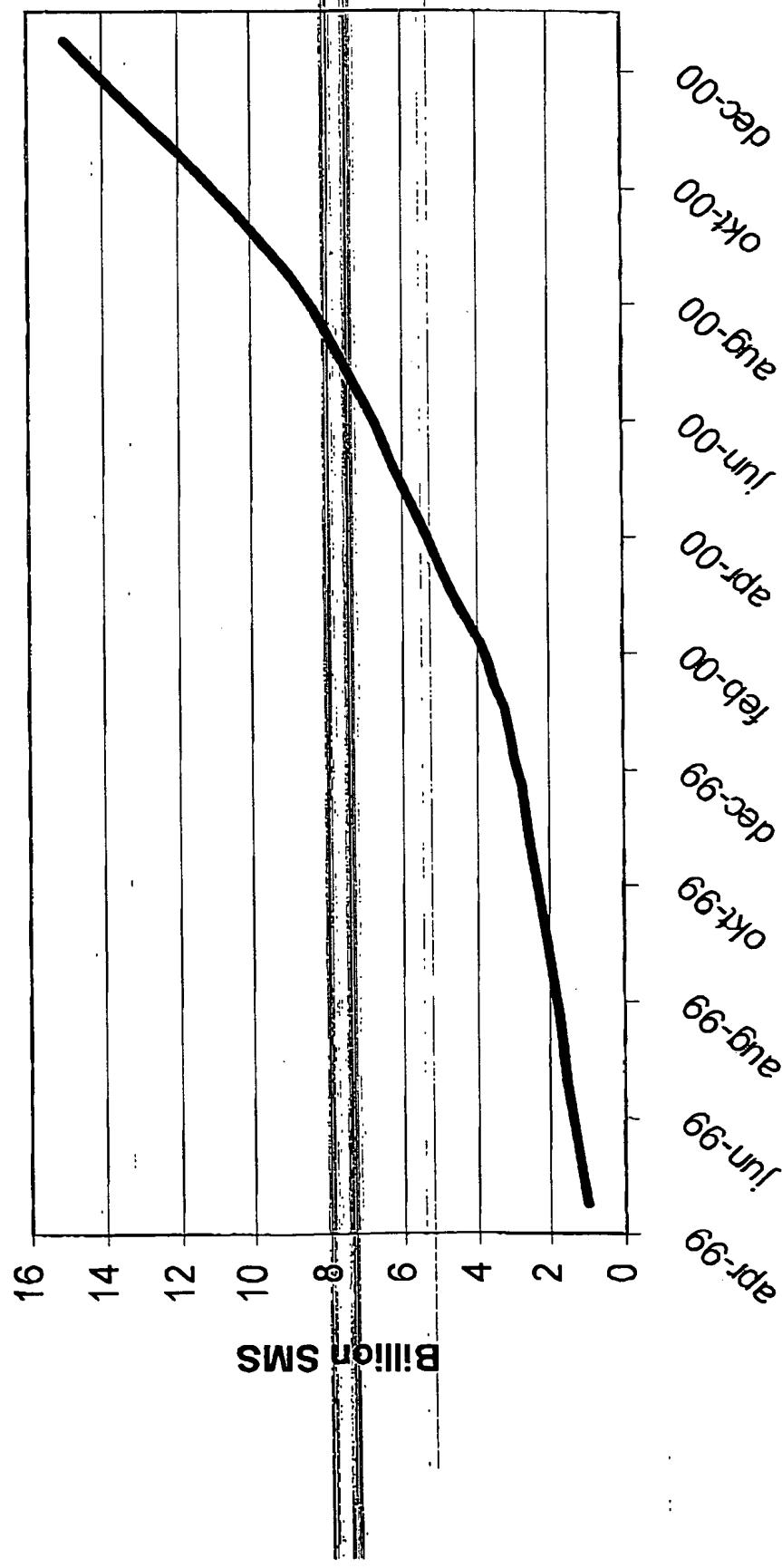
- Anoto
  - The company that will provide the model with a standard and infrastructure
    - Paper provider
    - The business partner that will sell the paper to the end user
  - Pen provider
- Service provider
  - A business partner that markets and support a service to a Pen customer.  
This is the business partner that Anoto will invoice for Anotos services. The service provider is the owner of the service.
  - The business partner that will brand, support and sell the Pen
- Subscription provider/operator
  - A business partner that bills a service to a Pen-customer, a subscription provider will distribute the revenues to Anoto or service providers

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## Exempel of market segment

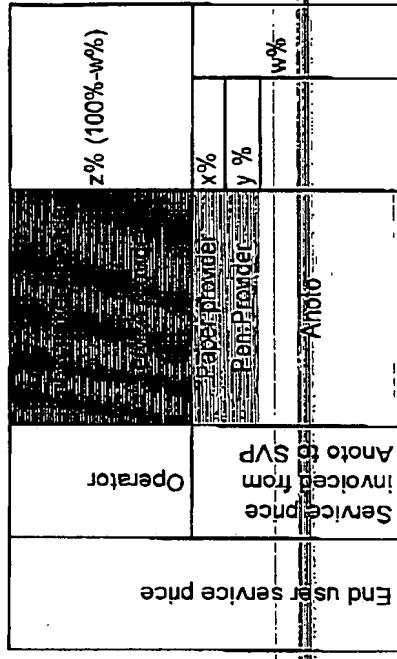
### SMS traffic per Month - Growth



(source: Ing Barings - Charterhouse Securities)

## The Anoto business model year 1, core services

- 5 Partners
  - A subscription provider (SP)
  - A service provider (SVP)
  - A paper provider
  - A pen provider
- Revenue sharing model
  - Revenue sharing based on the end user price for service (per transaction or flat rate)
  - Shares on end user price should cover all costs for partners
  - The agreed % is translated into an absolute value valid for an agreed time period



Traffic Fees

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# The Anoto business model, Business opportunities for subscription providers in a mature market

## Core services

End user service price	Anoto to SVP Invoiced from Operator	Service provider Anoto	Service provider Z% (100%-W%)
------------------------	----------------------------------------	---------------------------	----------------------------------



## Open services

End user service price	Anoto to SVP Invoiced from Service provider	Service provider Anoto	Service provider Z% (100%-W%)
------------------------	------------------------------------------------	---------------------------	----------------------------------



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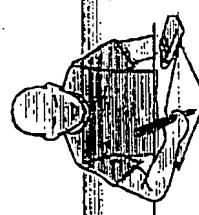
79

# BILLING & INVOICING

Billing Records



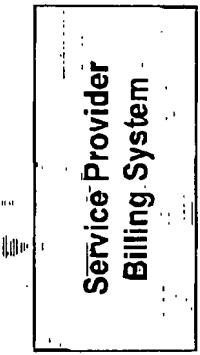
Payment



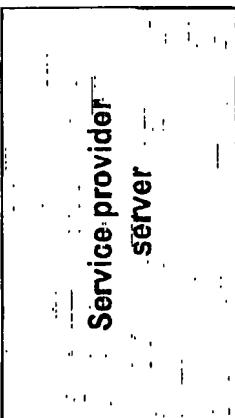
Invoice

Invoice

Payment



Billing Records



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## Confidential info

## Internal Goals in Anoto for service providers

### Core services

Service Provider	max 35%	goal 20%	100%
ANS-HW & SW	max 10%	goal 0%	
ANS Licenses		goal 10%	
ANS O&M		goal 5%	
Service Admin		goal 5%	
Service development		goal 7%	
IPR	goal 3%	goal 3%	

### Open services

Service Provider	max 35%	goal 20%	100%
ANS-HW & SW	max 5%	goal 3%	
ANS Licenses		max 10%	goal 0%
ANS O&M		goal 10%	
Service Admin		goal 5%	
IPR	goal 3%	goal 3%	

The minimum value charged for a core service from Anoto is 8 cent (excl. VAT). This will cover paper, pen and Anoto

The minimum value charged for a open service from Anoto is 7 cent (excl. VAT). This will cover paper, pen and Anoto

81

Bilaga 9

# Anotos Business model

- Anotos business model for partners
  - Anotos business model for the user
  - Users of services can subscribe as many services as the user wants
  - The user is paying for the value of using one service once
- Is based on revenue sharing principles for all services that are developed on the Anoto technology and when the Anotos look up server is used (ANS)

## Payment for the use of services

will be distributed to business partners when the services has been used by the end user

- Anoto will provide partners with tools and support

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# Anotos Business model

Roles & responsibilities within Anoto business model

- Anoto
- Pen Provider
- Paper provider
- Service provider
- Subscription provider

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# Anotos Business model definitions

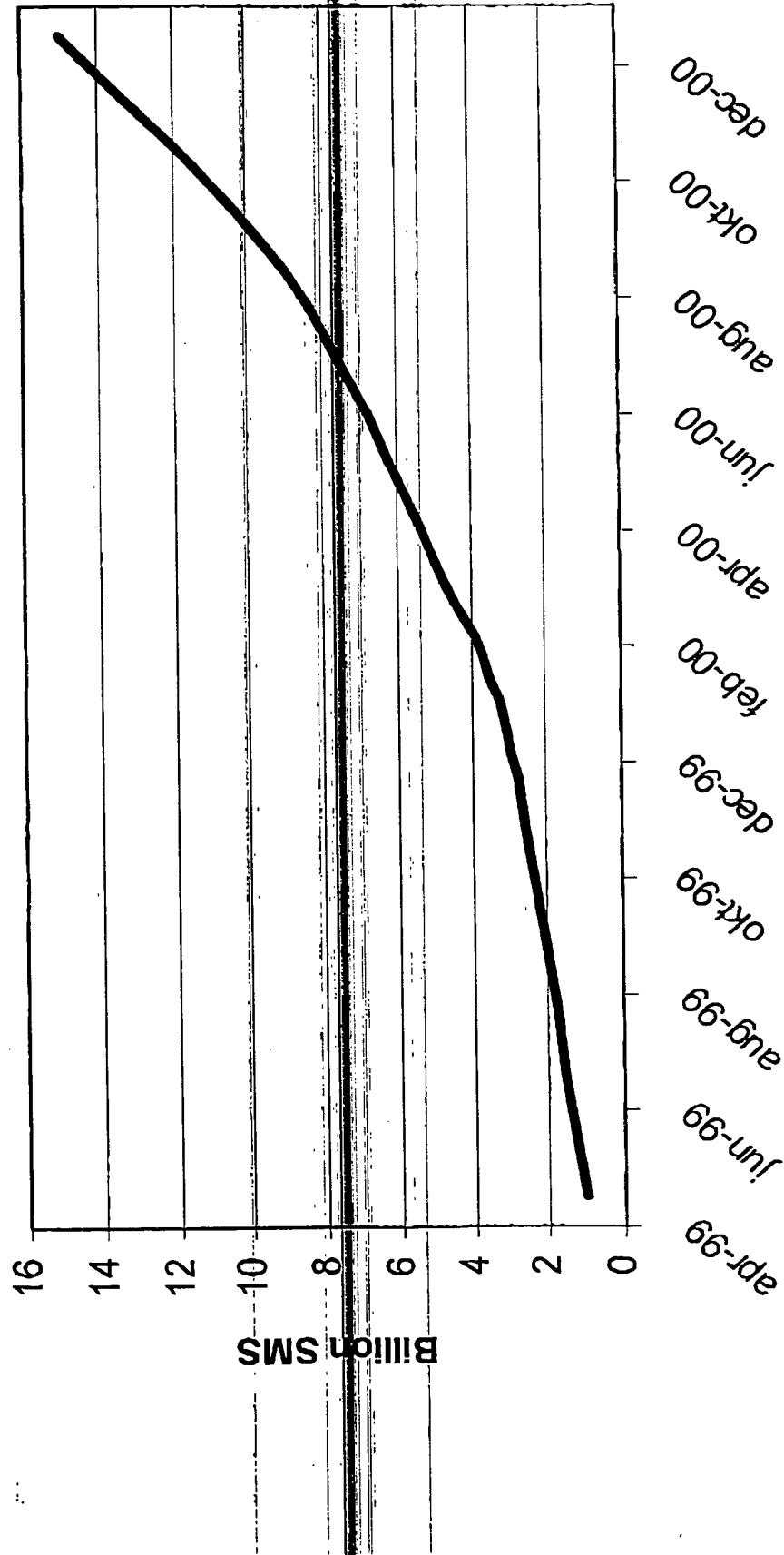
88  
W

- Anoto
  - The company that will provide the model with a standard and infrastructure
    - Paper provider
    - The business partner that will sell the paper to the end user
- Service provider
  - The business partner that will brand, support and sell the Pen
  - ~~A business partner that markets and~~
  - This is the business partner that Anoto will invoice for Anoto services. The service provider is the owner of the service.
- Subscription provider/operator
  - A business partner that bills a service to a Pen-customer, a subscription provider will distribute the revenues to Anoto or service providers

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## Exempel of market segment

### SMS traffic per Month - Growth



(source: Ing Barings - Charterhouse Securities)

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## The Anoto business model year 1, core services

- 5 Partners
  - A subscription provider (SP)
  - A service provider (SVP)
  - A paper-provider
  - A pen provider

		Anoto AB	
		x%	y%
Operator		Provider	SP Provider
Service price invoiced from Anoto SVP			
End user service price	Anoto	Anoto	Anoto

### Traffic Fee's

- Revenue sharing model
  - Revenue sharing based on the end user price for service (per transaction or flat rate)
  - Shares on end user price should cover all costs for partners
    - The agreed % is translated into an absolute value valid for an agreed time period

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# The Anoto business model, Business opportunities for service providers (SVP) in a mature market

## Open services


Traffic Fees

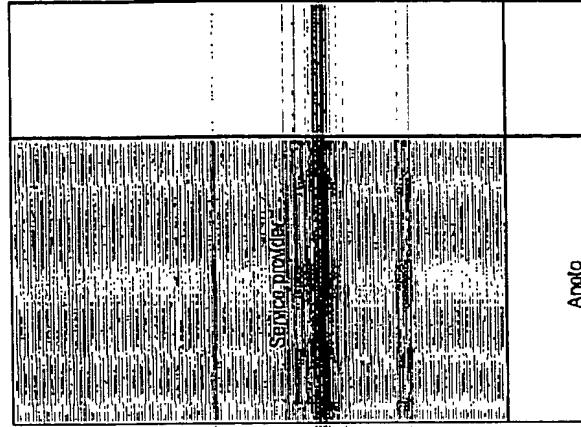
## The Anoto business model vertical applications

- 2 Partners

- A service provider
- Anoto

- Anotos revenues (assumptions the  
~~SERVICES WILL NOT USE THE ANTS,~~  
local solutions), alternatives:

- Anoto will sell pattern valid for an  
agreed time period
- Anoto will charge the service  
provider based on savings or value  
for the service
- An absolute value, valid for an  
agreed time period
- Yearly fee per user/ subscriber



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## The Anoto business model for high value open services

- 3 Partners

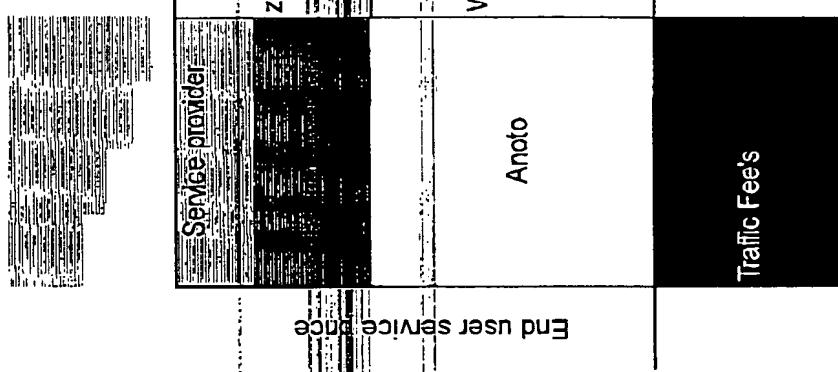
- A subscription provider
- Service provider
- Anotos services

### Revenue-Sharing model

#### Revenue-sharing for the ANS

##### service value

- A roof for Anotos share on the value added service and a bonus system for high volumes will be added to the model
- The extra value will not automatically be invoiced from subscription providers

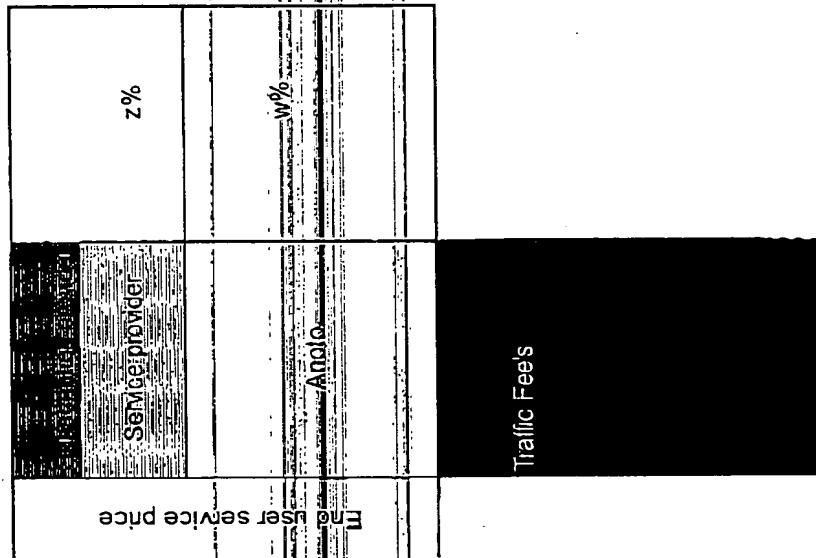


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## The Anoto business model for low value open services



- 3 Partners
  - A subscription provider
  - A service-provider
  - Anoto
- Revenue sharing model
  - Revenue sharing based on Anots standard model
  - Anoto must approve the price if it is a new application

# BILLING & INVOICING

Billing Records



Payment

Subscribing Provider  
Billing System

90

Invoice  
Payment

Invoice

Payment

Billing Records

Service provider  
server

Service Provider  
Billing System

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## Confidential info

## Internal Goals in Anoto for service providers

### Core services

ANSI HW & SW	goal 0%	max 10%	goal 15%	max 35%	goal 20%	max 5%	goal 15%	max 35%	goal 20%	max 100%
ANS Licenses	goal 0%	max 10%	goal 15%	max 35%	goal 20%	max 5%	goal 15%	max 35%	goal 20%	max 100%
ANS O&M	goal 0%	max 10%	goal 15%	max 35%	goal 20%	max 5%	goal 15%	max 35%	goal 20%	max 100%
Service Admin	goal 0%	max 10%	goal 15%	max 35%	goal 20%	max 5%	goal 15%	max 35%	goal 20%	max 100%
Service development	goal 0%	max 10%	goal 15%	max 35%	goal 20%	max 5%	goal 15%	max 35%	goal 20%	max 100%
IPR	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%

The minimum value charged for a core service from Anoto is 8 cent (excl. VAT). This will cover paper, pen and Anoto

### Open services

ANSI HW & SW	goal 0%	max 5%	goal 10%	max 20%	goal 20%	max 5%	goal 10%	max 20%	goal 20%	max 100%
ANS Licenses	goal 0%	max 5%	goal 5%	max 10%	goal 10%	max 5%	goal 5%	max 10%	goal 10%	max 100%
ANS O&M	goal 0%	max 5%	goal 5%	max 10%	goal 10%	max 5%	goal 5%	max 10%	goal 10%	max 100%
Service Admin	goal 0%	max 5%	goal 7%	max 10%	goal 10%	max 5%	goal 7%	max 10%	goal 10%	max 100%
Service development	goal 0%	max 5%	goal 5%	max 10%	goal 10%	max 5%	goal 5%	max 10%	goal 10%	max 100%
IPR	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%	goal 3%	max 3%

The minimum value charged for a open service from Anoto is 7 cent (excl. VAT). This will cover paper, pen and Anoto

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# Anotos Business model

- Anotos business model for partners
  - Is based on revenue sharing principles for all services that are developed on the Anoto technology and when the Anotos look up server is used (ANS)
  - Anotos business model for the user
    - Users of services can subscribe as many services as the user wants
    - The user is paying for the value of using one service once

Payment for the use of services

will be distributed to business partners when the services has been used by the end user

- Anoto will provide partners with tools and support

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# Anotos Business model

Roles & responsibilities within Anoto business model

- Anoto
- Pen Provider
- Service provider
- Paper provider

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# Anotos Business model definitions

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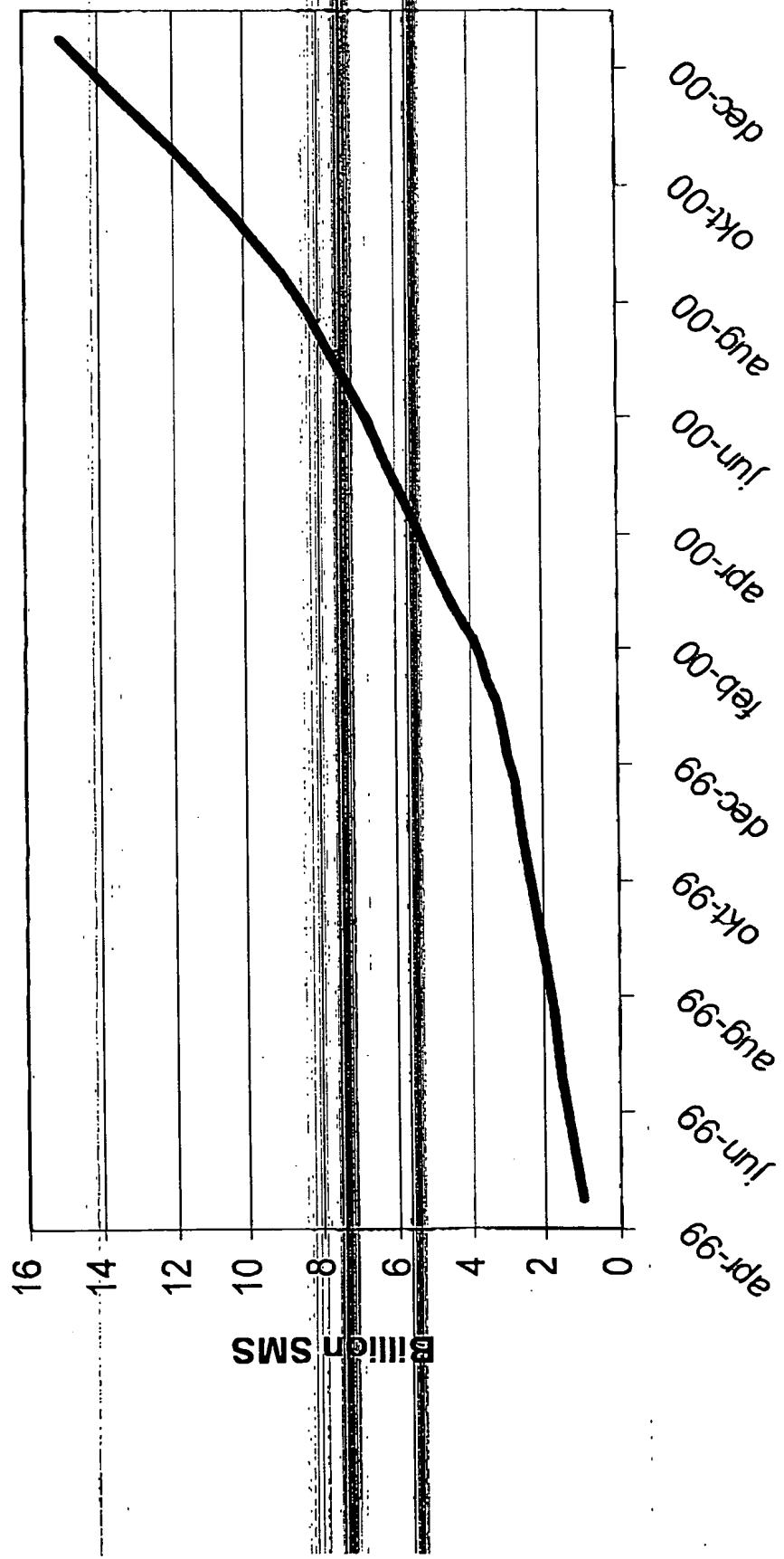
- Anoto
  - The company that will provide the model with a standard and infrastructure
- Paper provider
  - The business partner that will sell the paper to the end user
- Pen provider
  - The business partner that will brand, support and sell the Pen
- Service provider
  - A business partner that will support a service to a Pen customer.

This is the business partner that Anoto will invoice for Anoto services. The service provider is the owner of the service.
- Subscription provider/operator
  - A business partner that bills a service to a Pen-customer, a subscription provider will distribute the revenues to Anoto or service providers

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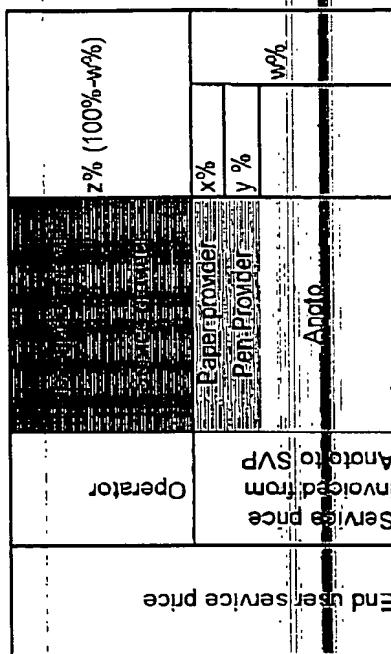
# Exempel of market segment Growth

## SMS traffic per Month



The Anoto business model year 1, core services

- 5 Partners
  - A subscription provider (SP)
  - A service provider (SVP)
  - A paper provider
  - A pen provider



## Traffic Fees

- Revenue sharing model
  - Revenue sharing based on the end user price for service (per transaction or flat rate)
  - Shares on end user price should cover all costs for partners
  - The agreed % is translated into an absolute value valid for an agreed time period

# The Anoto business model, Business opportunities for pen providers in a mature market

## Core and open services

Pen provider	Y%
Anoto	

## Traffic Fee's

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98

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# Anotos Business model

- Anotos business model for partners
  - Is based on revenue sharing principles for all services that are developed on the Anoto technology and when the Anotos look up server is used (ANS)
- Anotos business model for the user
  - Users of services can subscribe as many services as the user wants
  - The user is paying for the value of using one service once

---

— Payment for the use of services

— will be distributed to business partners when the services has been used by the end user

- Anoto will provide partners with tools and support

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# Anotos Business model

Roles & responsibilities within Anoto business model

- Anoto
- Pen Provider
- Paper provider
- Service provider

*Subscribing Partner*

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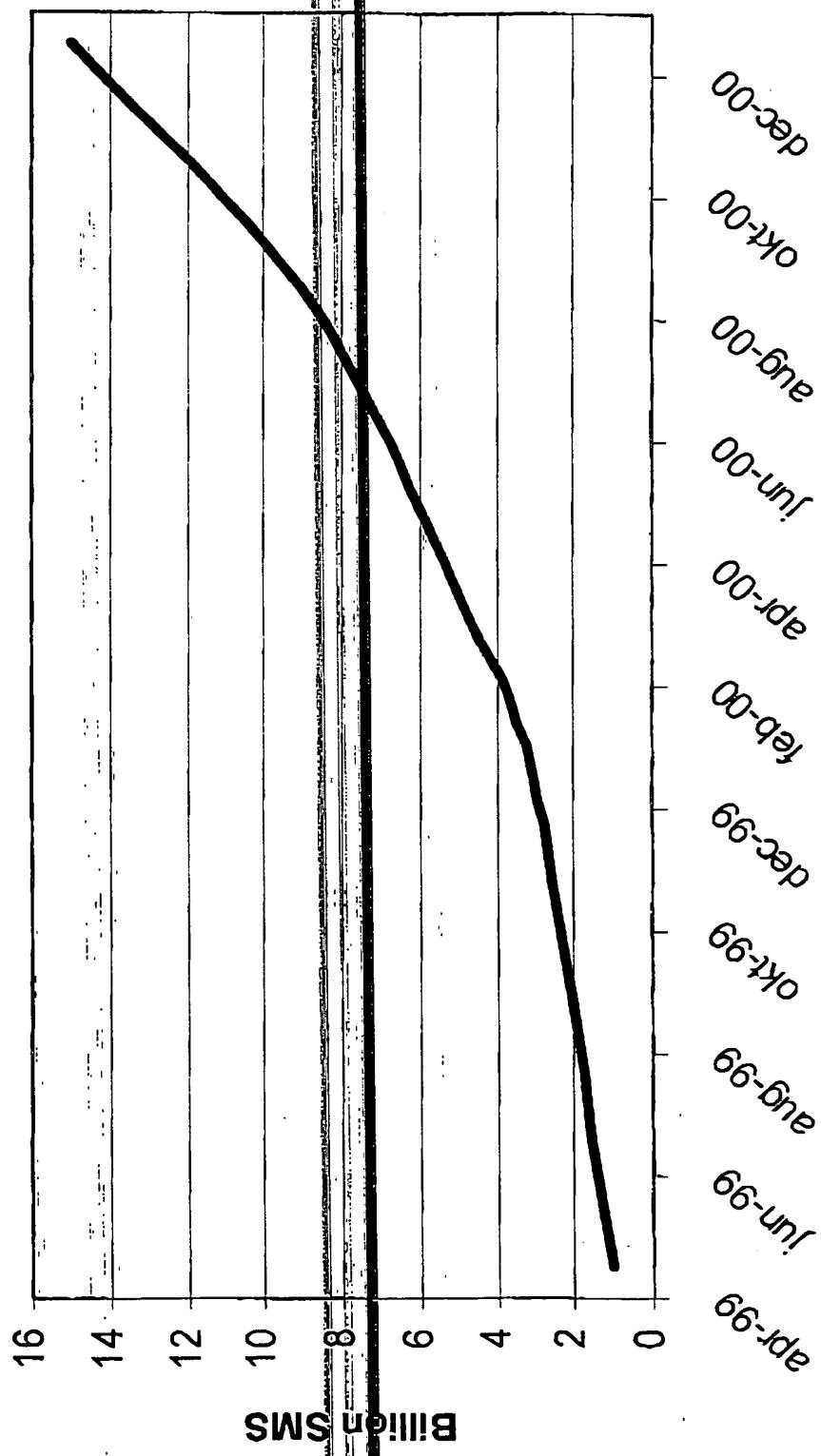
# Anotos Business model definitions

- Anoto
  - The company that will provide the model with a standard and infrastructure
    - Paper provider
    - The business partner that will sell the paper to the end user
  - Pen provider
- Service provider
  - ~~A business partner that will brand, support and sell the Pen~~  
support a service to a Pen customer.  
This is the business partner that Anoto will invoice for Anoto services. The service provider is the owner of the service.
- Subscription provider/operator
  - A business partner that bills a service to a Pen-customer, a subscription provider will distribute the revenues to Anoto or service providers

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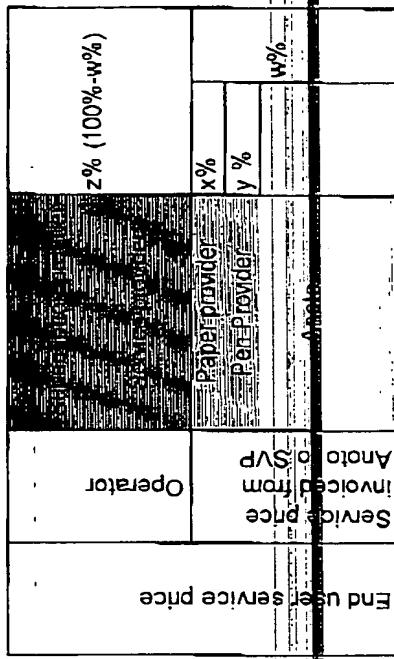
# Exempel of market segment Growth

## SMS traffic per Month



## The Anoto business model year 1, core services

- 5 Partners
  - A subscription provider (SP)
  - A service provider (SVP)
  - A paper provider
  - A pen provider
- Revenue sharing model
  - Revenue sharing based on the end user price for service (per transaction or flat rate)
  - Shares on end user price should cover all costs for partners
    - The agreed % is translated into an absolute value valid for an agreed time period

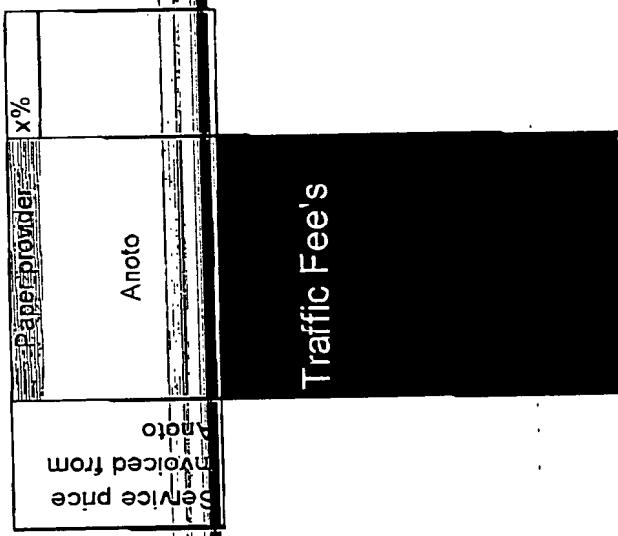


Traffic Fee's

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# The Anoto business model, Business opportunities for paper providers in a mature market

## Core and open services



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APR 23 2001 01:24 FR FINNEGAN HENDERSON 202 408 4400 TO 01146841078501 P.29

WHAT IS CLAIMED IS:

1. A method for collecting payments in a communications system, the method comprising:

5 receiving a request, via a provider of communications services, to provide a product to a user, the request being generated in response to the user detecting information using a pen-like device that generates a signal reflective of the request;

causing information to be transmitted in response to the received request; and

transmitting a request for payment to the provider of communications services.

10

2. The method of claim 1 wherein the product includes an information look-up provided by a look-up service, and wherein the request for payment seeks reimbursement for a look-up fee by the look-up service.

15

3. The method of claim 2 wherein the request for payment includes a single request for reimbursement for multiple information look-ups.

4. The method of claim 2 further comprising billing the user for the information look-up, wherein the user is billed by the communications services provider.

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APR 03 2001 01:24 FR FINNEGAN HENDERSON 202 408 4400 TO 01146841078501 P.30

5. The method of claim 2, wherein the communications services provider batches a series of information look-ups initiated by the user and bills the user at one time for the series of look-ups.

6. The method of claim 2, wherein the communications services provider batches a series of information look-ups and bills an employer of the user for information look-ups initiated by a plurality of user employees of the employer.

10 7. The method of claim 1, wherein during causing, the information is transmitted from a look-up service to the user's pen-like device.

8. The method of claim 1, wherein the product is chosen from the group consisting of goods and services.

15 9. The method of claim 8, wherein the request includes an order to purchase the product from a vendor, and wherein the provider of communications services reimburses the vendor for a purchase by the user.

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10. The method of claim 8, wherein the provider of communications services bills the user for the user's purchase from the vendor.

11. The method of claim 8, wherein the provider of communications services bills the user for the user's purchase from the vendor in a single billing statement which also invoices communications services.

12. The method of claim 1 wherein the product includes both an information look-up provided by a look-up service and at least one item chosen from the group consisting of goods and services, and wherein during transmitting, a look-up service transmits to the communications services provider a request for reimbursement of a look-up fee, and a vendor of the item transmits to the communications services provider a request for reimbursement for the item.

13. A method for collecting payments in an communications system, the method comprising:

receiving a request at a look-up service to provide an information look-up to a user, the request being generated in response to the user detecting information using a pen-like device that generates a signal reflective of the request;

causing information to be transmitted from the look-up service to the user; and  
20 billing an entity other than the user, a fee for the information look-up.

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102

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14. The method of claim 13, wherein the entity other than the user is a communications services provider who provides a communication link between the user and the look-up service.

5

15. The method of claim 14, wherein the communications services provider bills the user for the information look-up.

16. The method of claim 13, wherein during billing the look-up service sends a request for reimbursement to an organization with whom the user is affiliated.

17. The method of claim 16, wherein the organization is an employer of the user.

18. The method of claim 16, wherein during billing, the look-up service bundles a series of payment requests for individual information look-ups, and transmits the bundle directly to the organization in a single request for reimbursement.

19. A method for collecting payments in a communications system, comprising: receiving a request for mapping information corresponding to a position of a digital pen

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108

on digital paper, the position corresponding to a service offered by a network operator;

retrieving the mapping information;

sending the mapping information to the digital pen; and

collecting a payment from the network operator for retrieving the mapping information.

5

20. The method of claim 19, wherein the received request includes both an identification for the digital pen and coordinates indicative of the position of the digital pen on the digital paper.

10 21. The method of claim 19, wherein the mapping information includes a uniform resource locator (URL) of the network operator.

15 22. The method of claim 19, said collecting comprising:  
billing the network operator for retrieving the mapping information; and  
receiving the payment from the network operator.

23. The method of claim 22, wherein the payment from the network operator is a portion of a payment the network operator received from an end user.

20 24. A method for collecting payments in a communications system, comprising:  
receiving a request for mapping information corresponding to a position of a digital pen on digital paper, the position corresponding to a service offered by a network operator;

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retrieving the mapping information;  
sending the network operator an invoice for the retrieving; and  
collecting a payment from the network operator for the invoice.

5        25.      A method for collecting payments in a communications system, comprising:  
              billing an end user for a service initiated by moving a digital pen on digital paper;  
              receiving a payment from the end user for the service;  
              receiving an invoice from a mapping lookup service for retrieving mapping information  
corresponding to the position of the digital pen on the digital paper; and  
10        sending the mapping lookup service a portion of the payment received from the end user.

15        26.      The method of claim 25, wherein the mapping information includes a uniform  
resource locator (URL) of a network operator offering the service that corresponds to the position  
of the digital pen.

20        26.      A method for collecting payments in a communications system, comprising:  
              receiving a request for mapping information corresponding to a position of a digital pen  
on digital paper, the position corresponding to a service offered by a service provider;  
              retrieving the mapping information;  
              sending the mapping information to the digital pen; and  
              collecting payment from the service provider for the retrieving.

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11

27. The method of claim 26, wherein the service provider sends payment to a network operator for access to a communications network.
28. The method of claim 26, wherein the service provider bills a payment provider for the service offered by the service provider, and the payment provider bills an end user for the service.
29. The method of claim 28, wherein the end user sends payment to the network operator for access to the communications network.

10

30. The method of claim 26, wherein the request includes both an identification for the digital pen and coordinates indicative of the position of the digital pen on the digital paper.
- 15 31. The method of claim 26, wherein the mapping information includes a uniform resource locator (URL) of the service provider.
32. The method of claim 26, said collecting comprising:  
billing the service provider for retrieving the mapping information; and  
20 receiving the payment from the service provider.

33. A method for collecting payments in a communications system, comprising:

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APR 03 2001 01:27 FR FINNEGAN HENDERSON 202 408 4400 TO 01146841078501 P.35

providing a service for an end user that corresponds to a position of a digital pen on digital paper;

receiving an invoice from a mapping lookup service for retrieving mapping information corresponding to the position of the digital pen on the digital paper; and  
5 sending the mapping lookup service payment for the invoice.

34. The method of claim 33, further comprising;  
receiving an invoice from a network operator for access to a communications network;  
and  
10 sending payment to the network operator for the invoice from the network operator.

35. The method of claim 34, wherein the end user sends payment to the network operator for access to the communications network.

15 36. The method of claim 33, wherein the mapping information includes a uniform resource locator (URL) of the service provider.

37. A system for collecting payments in a communications system, comprising:  
a mapping lookup service operable to retrieve mapping information corresponding to a  
20 position of a digital pen on digital paper in response to a request for the mapping information;  
and  
a network operator operable to offer a service corresponding to the position of the digital

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pen and bill an end user for the service corresponding to the position of the digital pen, wherein the mapping lookup service collects payment from the network operator for retrieving the mapping information.

5 38. The system of claim 37, wherein the mapping information includes a uniform resource locator (URL) of the network operator.

10 39. A system for collecting payments in a communications system, comprising:  
a mapping lookup service operable to retrieve mapping information corresponding to a position of a digital pen on digital paper in response to a request for the mapping information;

a service provider operable to offer a service corresponding to the position of the digital pen to an end user, wherein the mapping lookup service collects payment from the service provider for retrieving the mapping information; and

15 a network operator operable to bill the service provider for access to a communications network.

40. The system of claim 39, wherein the mapping information includes a uniform resource locator (URL) of the service provider.

20 41. The system of claim 39, wherein the network operator bills the end user for access to the communications network.

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42. A system for collecting payments in a communications system, comprising:

- a mapping lookup service operable to retrieve mapping information corresponding to a position of a digital pen on digital paper in response to a request for the mapping information;
- a service provider operable to offer a service corresponding to the position of the digital pen to an end user, wherein the mapping lookup service collects payment from the service provider for retrieving the mapping information;
- a payment provider operable to bill the end user for the service corresponding to the position of the digital pen, wherein the service provider bills the payment provider for the service corresponding to the position of the digital pen.

10 a network operator operable to bill the service provider and the end user for access to a communications network.

43. The system of claim 42, wherein the mapping information includes a uniform resource locator (URL) of the service provider.

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ABSTRACT OF THE DISCLOSURE

Methods and systems for communications service revenue collection may include a mapping lookup service. The mapping lookup service is configured to retrieve mapping information corresponding to a position of a digital pen on digital paper in response to a request for the mapping information from the digital pen. A service provider or network operator who offers a service corresponding to the position of the digital pen on digital paper may be billed by the mapping lookup service for retrieving the mapping information.

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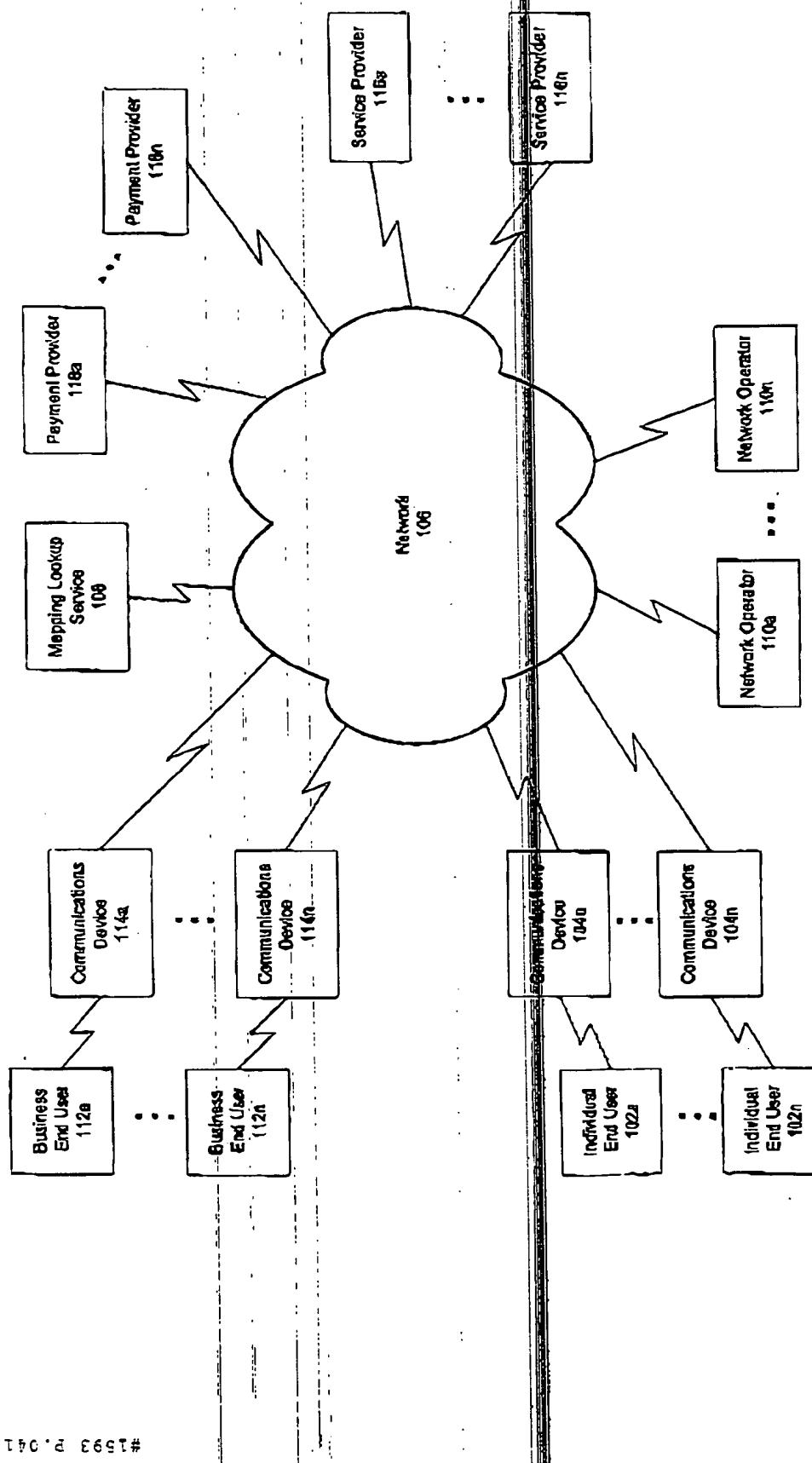


FIG. 1A

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Coordinates	URL
X1, Y1	URL1
X2, Y2	URL2
X3, Y3	URL3
X4, Y4	URL4
X5, Y5	URL5
X6, Y6	URL6
X7, Y7	URL7
X8, Y8	URL8

FIG 1B

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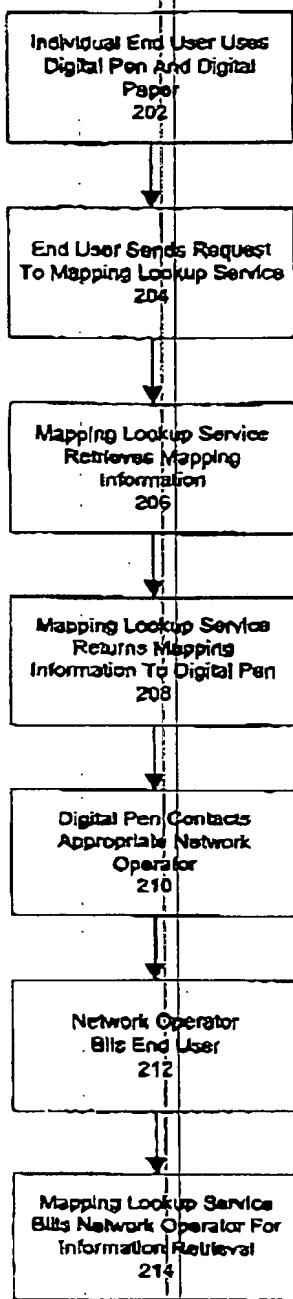


FIG. 2

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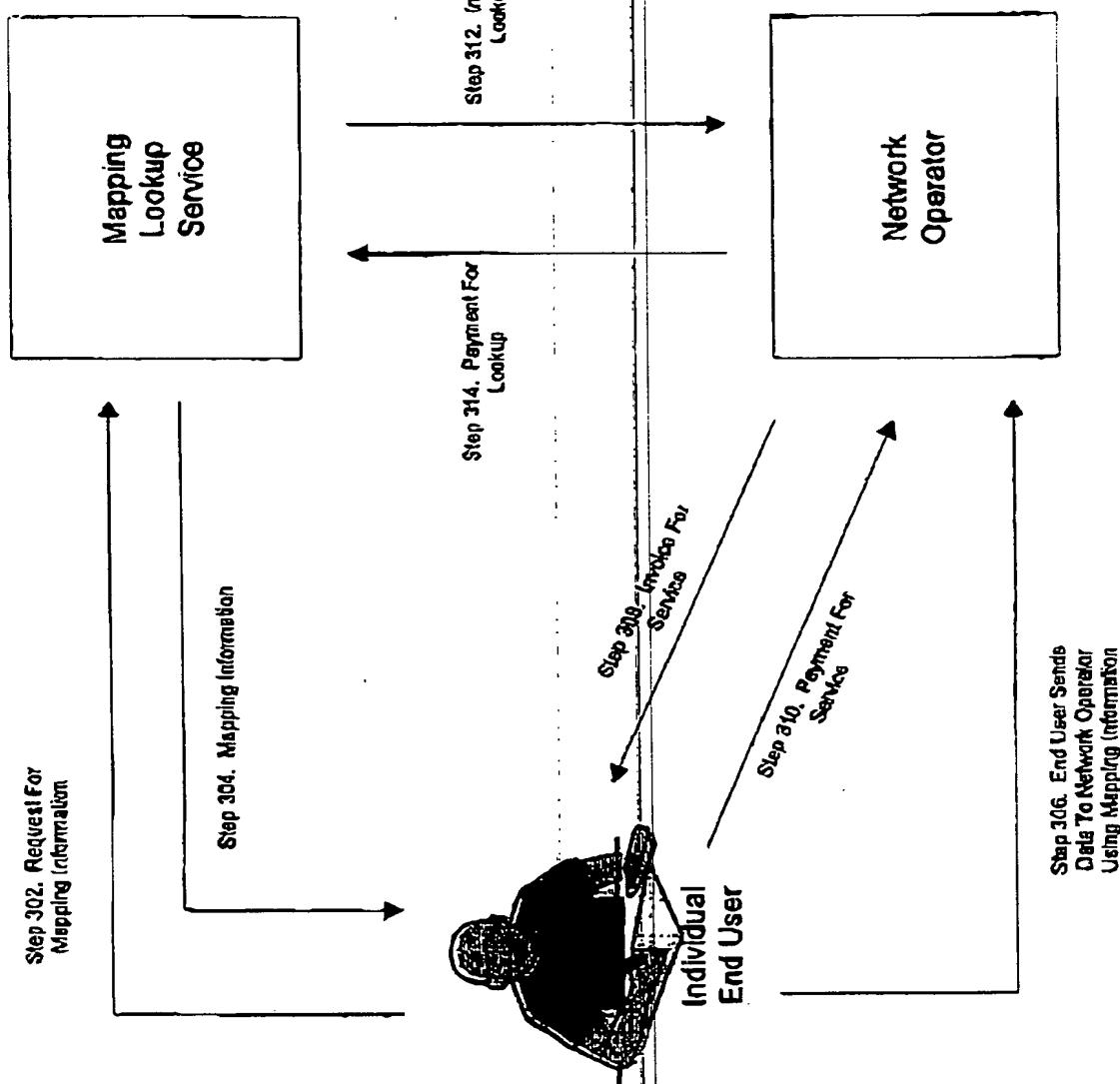


FIG. 3

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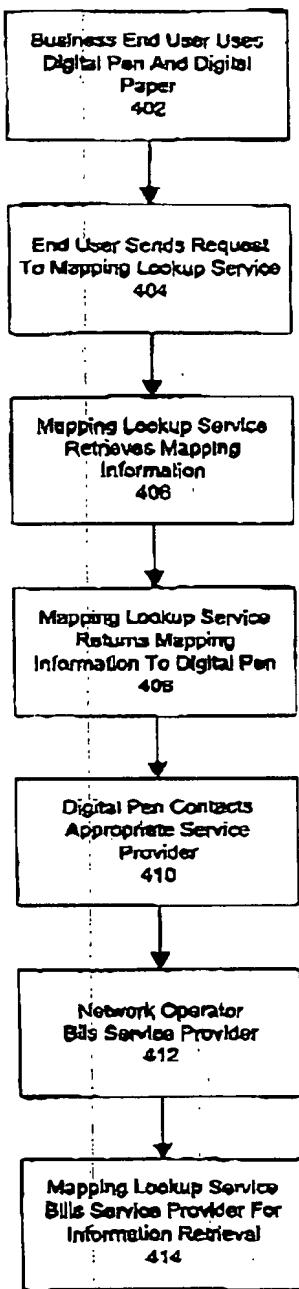


FIG. 4

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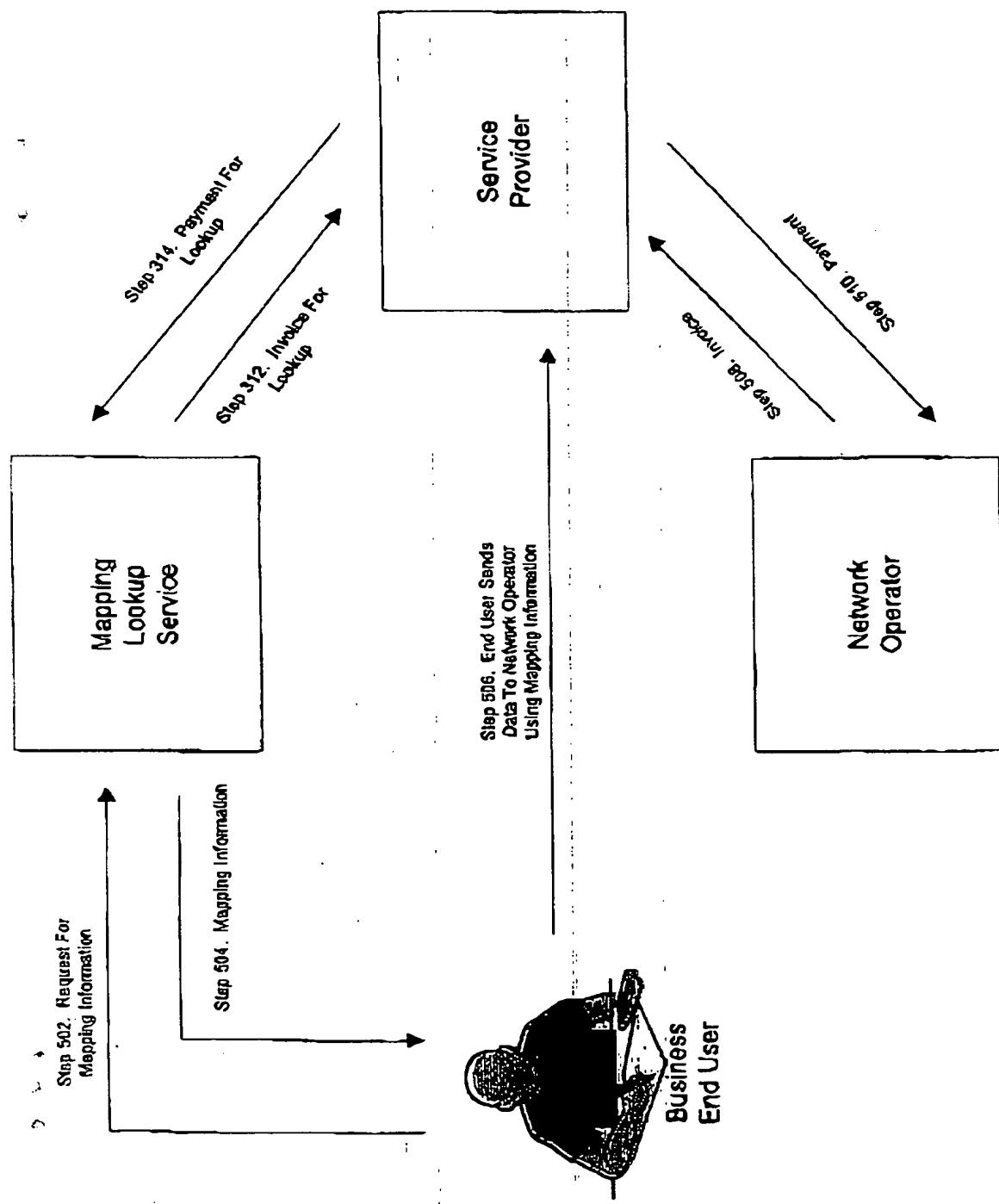


FIG. 5

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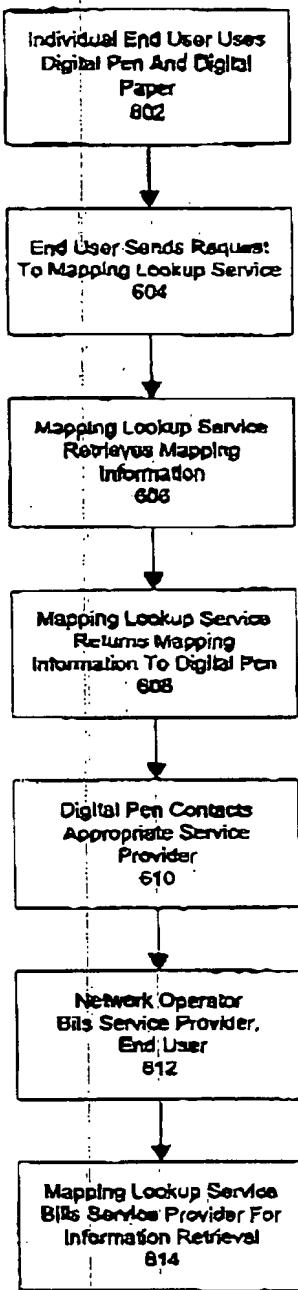


FIG. 6

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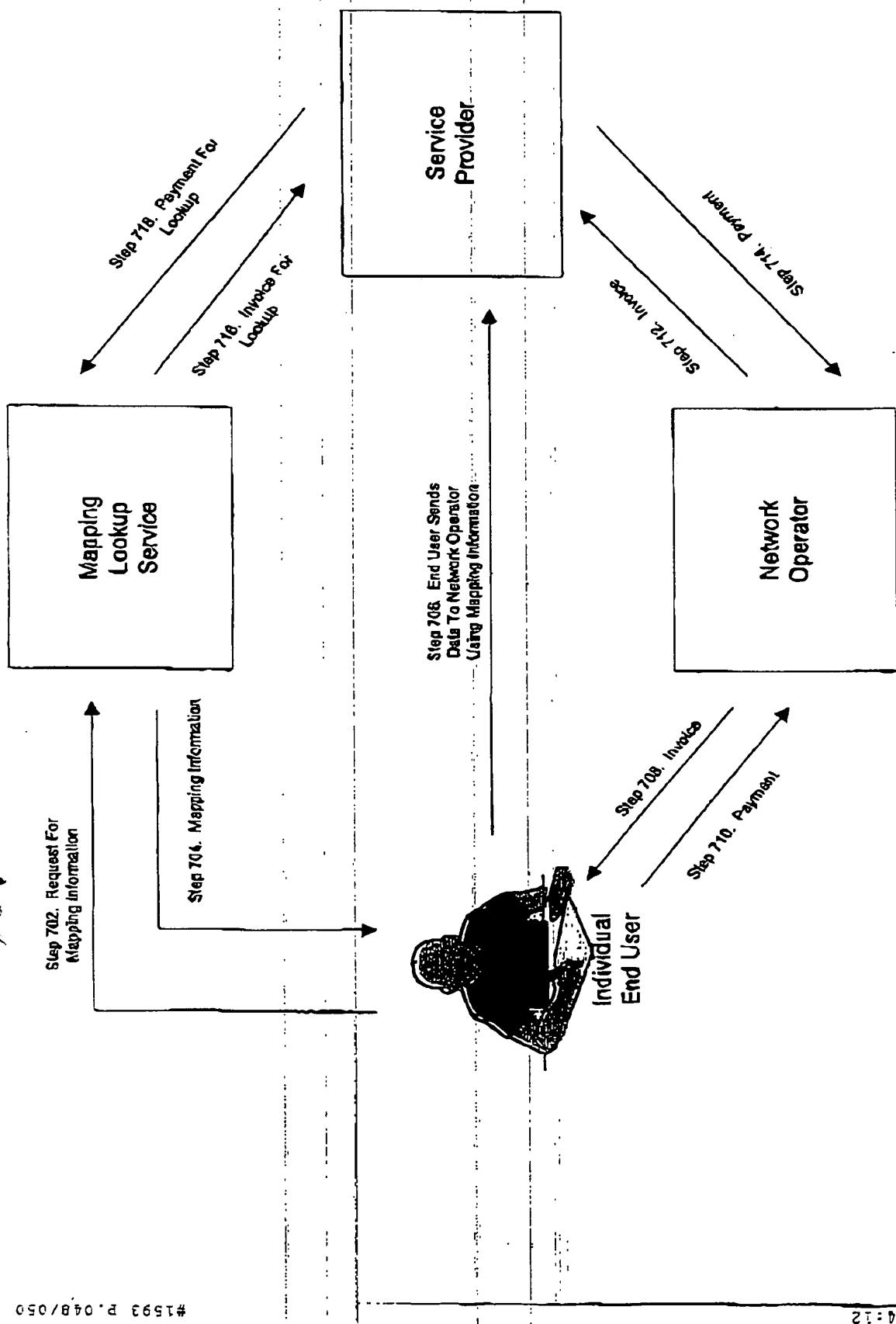


FIG. 7

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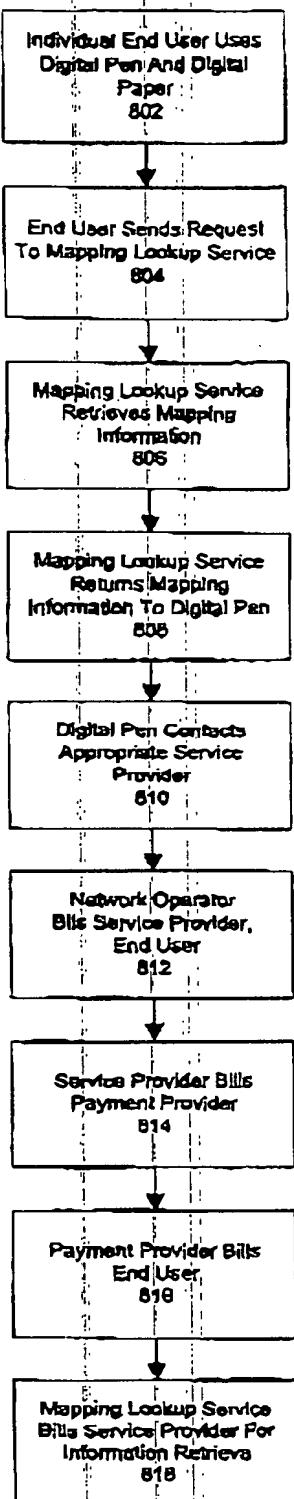


FIG. 8

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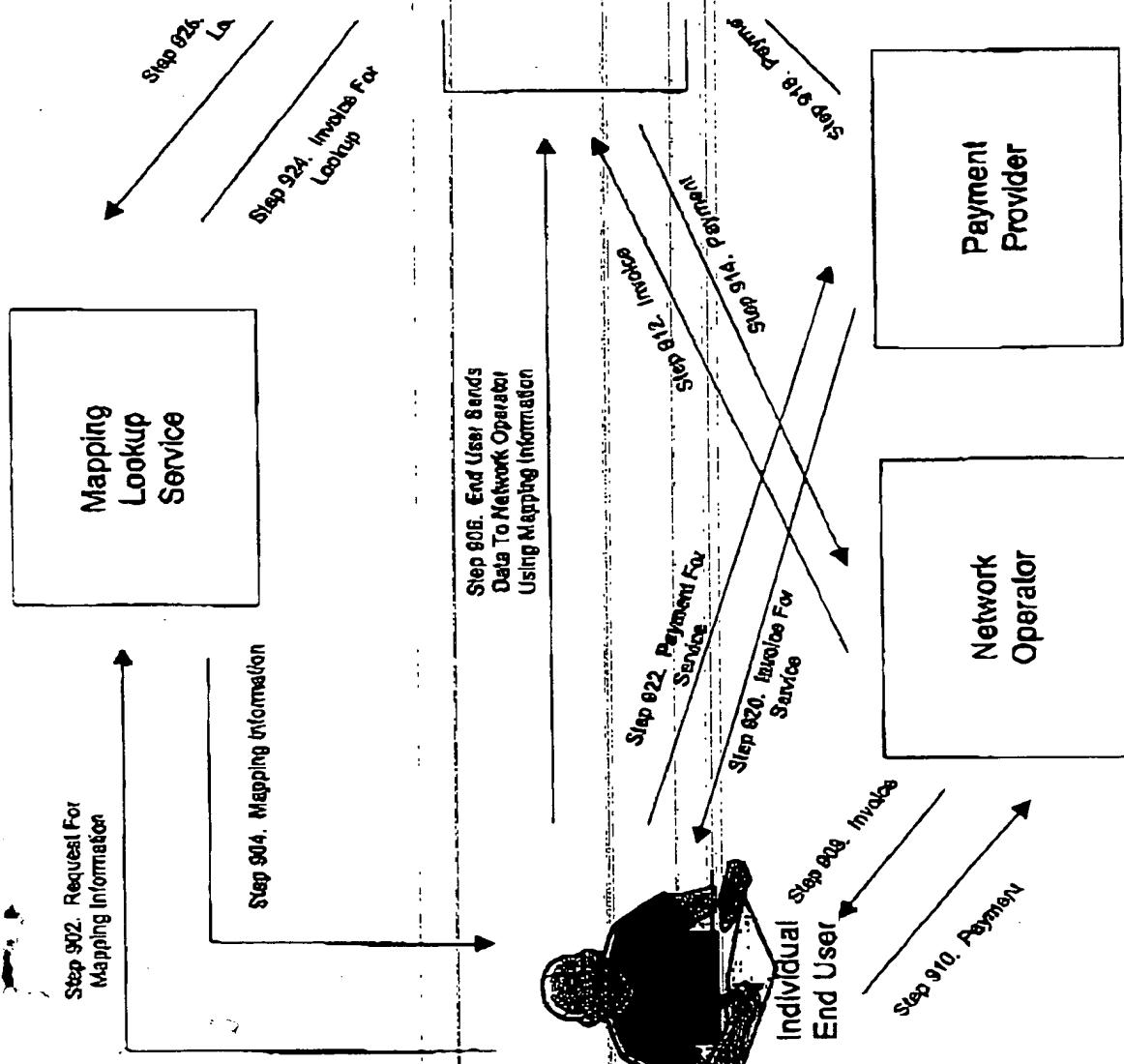


FIG. 9

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